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Loose Stools in Infants

require extra diapering, and inconvenience the mother

Clinically, loose stools are accompanied by a dehydration which, when excessive or long continued, interferes with the baby's normal gain. A long-continued depletion of water is serious, since "the fluid requirements of an infant are tremendous. A normal infant 15 pounds in weight will frequently excrete as much as one litre of urine per day. A negative water balance for more than a very short period is incompatible with life." (Brown and Tisdall)

Moreover, when the condition is superimposed by chance infection, the delicate balance may be seriously upset, since the infant's reserves have already been drawn upon, so that resistance to infection and dangerous forms of diarrhea may be too low for safety. Every physician dreads diarrhea, which Holt and McIntosh call "the commonest ailment of infants in the summer months."

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Volume XVII

OCTOBER, 1934

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SOME COMMENTS ON MORTALITY AND MORBIDITY TRENDS*

HENRY W. COOK, M.D.

Minneapolis

ONE of the most pertinent of the many criticisms aimed at modern civilization, especially of the past half century, is the universal concentration and absorption of interest in immediate results without due regard to the longer vision, and to this have been attributed the major mistakes of our industrial and economic system, and in large part the present crisis. The succession of five-year plans in Russia, the careful planning of Mussolini, and the recent suggestion of a fifty-year plan by Mr. Roosevelt, show the trends of the world-wide "New Deal" as opposed to day by day expediency. To a civilization probably in its infancy in relation to the centuries ahead, this could hardly have been otherwise. The amazingly rapid acquisition of such fascinating toys as the steamboat, automobile, radio, aeroplane, and the other marvels of our machine age, and their mass production, have diverted human interest from a broader philosophical viewpoint, and, as has been said, we have been too busy living to have really lived in a higher or truer sense. H. G. Wells likens modern science to a rich uncle who has brought to the nursery more toys than the children know what to do with. The vigorous lines of a modern poet, Robinson Jeffers, indict science:

"Man, introverted man, having crossed
In passage and but a little with the nature of things this
latter century,
Has begot giants; but being taken up
Like a maniac with self-love and inward conflicts cannot
manage his hybrids.
Being used to deal with edgeless dreams,
Now he's bred knives on nature, turns them also inward;
they have thirsty points though.
His mind forebodes his own destruction;

*Thesis presented before the Minnesota Academy of Medicine, March 14, 1934.

Actæon who saw the goddess naked among leaves and
his hounds tore him.

A little knowledge, a pebble from the shingle,

A drop from the ocean: who would have dreamed this
infinitely little too much?"

That scientific conquest and production must be planned and controlled from a longer viewpoint to forestall descent, perhaps, into complete anarchy has required dictatorships in Russia, Italy, Austria, and Germany, an incipient revolution in France, and a virtual dictatorship in the United States. Concentration of physical, mental, and spiritual life to material acquisition or pecuniary gain, so characteristic of our present phase of civilization, inevitably ends in progressive atrophy and degeneration.

We of the oldest profession, rooted and drawing nourishment, even if often in attenuated form, from the most ancient cultures, have escaped many of the more pernicious ills of the industrial age, and while we may not have enjoyed all its luxuries, extravagances, and material rewards, we have, we flatter ourselves, handed down, moderately inviolate, many of our ancient humanitarian, philosophical, and spiritual inheritances. Even medicine, however, cannot be expected to have escaped the extravagances and errors of judgment that are perfectly understandable as an inevitable accompaniment of the breath-taking discoveries that followed so rapidly one upon another during the past five decades. The modern medical student and practitioner has had crowding upon him such a complicated and kaleidoscopic maze of discoveries in chemical, physical, and biological fields that it has been almost necessary that his attention should have been monopolized by technic and material methods, and that the philosophical insight with which

early medicine was so intimately related, should be partly sidetracked and wisdom often sacrificed to knowledge. A review of the successive medical fads and obsessions which have dominated medical practice during these recent hectic decades does not engender entire complacency. Venesection antedates the modern era, but it was followed by oöphorectomies for every female abdominal discomfort, by the extravagances of glandular therapy, of fresh air as a cure-all, of light therapy, shot-gun vaccines, tonsillectomies, etc. Venesection, once the universal treatment, is now seldom practiced, and oöphorectomies are carefully considered, but an eminent medical authority not long ago stated that the medical profession would one day be as ashamed of the modern universal tonsillectomy as we are now ashamed of the venesection and oöphorectomies of the past generations.

Everett Dean Martin has said, "Modern life is concerned chiefly with immediate results; thinking is subordinated to doing." The modern mother who has a child underweight, or in her opinion under par mentally or physically, is not satisfied until some physician has told her a tonsillectomy is indicated and performs the operation. She wants something radical done to bring her child to the weight, size, or mental alertness of her neighbor's child, or of her own ideal of what her child should be, although the condition may be purely hereditary or biological, or requires dietary, hygienic, or mental guidance. For some years I have supervised the medical examinations of a private school of some 300 boys. For one of the students to reach high school age without a tonsillectomy is a very rare exception, and some have had three or four tonsillectomies! Certainly only a very small percentage could have been actually indicated.

The science of mathematics and its association with astronomy must have been a valuable influence in bringing the conceptions of early Greek medicine out of the realm of mysticism and superstition. The Greek physician and scientist was a mathematician as well as a philosopher. Sir James Jeans has said that only a mathematician can answer questions as to the nature of the physical world, and that when he answers, only another mathematician can understand. One of the great opportunities open to modern medicine that has not, I believe, been fully utilized or appreciated, is the application of mathematical and

statistical analysis to clinical experience. Most individual medical or even hospital experience is so restricted in volume and limited to such a short period of time that it is impossible that erroneous conclusions should not be drawn. A physician or clinic tries some new procedure, obtains in a small, perhaps selected, group favorable results. It is almost inevitable, unless these results can be controlled by a series of cases running into the thousands and observed over a period of ten or more years, that the conclusion will be greatly exaggerated or entirely erroneous. The danger is especially great that the entire profession will be misled if the observer is a prominent member of the profession or a plausible essayist.

Trudeau and some of his early patients improved under violent outdoor exercise, and it was years before he and the profession appreciated the need for rest and the injury resulting from exercise in tuberculosis. It is the same type of error that has led Cabot to give the impression that systolic mitral murmurs are rather a favorable factor in longevity than otherwise, in spite of insurance statistics proving conclusively that the mortality in carefully selected cases is 175+ per cent of the expected.

Tonsillitis and rheumatic fever are often associated conditions. It was a not unnatural inference that the relation was one of cause and effect, and that removal of the tonsils would prevent a recurrence of the rheumatism. It has taken twenty-five years and a large accumulated experience, after hundreds of thousands of unnecessary tonsillectomies, for the fact to be established that recurrences are as common after tonsillectomies as when the tonsils are allowed to remain. Probably no one physical sign has received as much study and interest as hypertension, and yet, after thirty years, few practitioners are familiar with the insurance experience in hypertension or realize the seriousness of the smaller degrees of increase in systolic and diastolic pressure. Although the erroneous standard of 100 plus the age as representing normal systolic blood pressure has been largely abandoned, yet most physicians, including many leading internists, do not recognize the significance of a systolic pressure of 136 to 146, or a diastolic of 90 to 98. The following charts are based on the records of hundreds of thousands of cases observed over periods of twenty years and more. They can be re-

lied on to give the true picture. It must be kept in mind that Chart I records the average and not the normal. The normal is much lower, especially at the older ages, as in the "average" group

Age	Systolic mm. Hg.	Diastolic mm. Hg.	Pulse Pressure mm. Hg.
20	120	76	44
30	122	78	45
40	124	80	46
50	128	82	48
60	133	86	50

Chart I.

are included many cases of beginning cardiovascular disease. It was a mathematician, Mr. Arthur Hunter, who first called attention to the error of confusing "average" and "normal," both for overweight and hypertension.

Departure From Average Systolic Blood Pressure	Actual Deaths	Expected Deaths by Company's Standard	Ratio of Actual to Expected Deaths
-15 to -5 mm.	349	401	87%
-4 to +4 mm.	396	394	101
+5 to +15 mm.	421	422	114
+16 to +24 mm.	59	46	128
Total	1,285	1,263	102%

Chart II.

The trends of mortality over long periods of time are of interest and of value in giving us a perspective for the varying incidence of disease and the results of treatment or efforts at prevention and control. Although tremendous gains have been made during the past few decades in the conquest of certain diseases, it is well to keep in mind how much still remains to be accomplished and how unavailing all effort has been with several major causes of death. While it is true that in this country during the past half century eighteen years have been added to the normal life expectancy, we should also keep in mind that most of this gain has been within the first two years of life, and that no gain is shown after the age of forty-five, and a very marked loss is shown in several important diseases, such as heart disease (now the largest single mortality

factor), in cancer, and in diabetes. In other words, while a baby born to-day has an increase in life expectancy of eighteen years, an adult, forty-five years of age or over, has no increased expectancy in comparison with fifty years ago, and probably even in comparison with 2,500 years ago, in the days of Pericles.

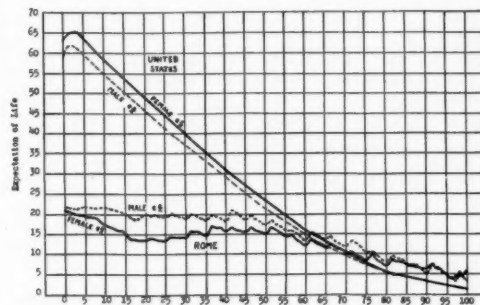


Chart III.

From Raymond Pearl's "The Biology of Death."

The improvement in disease control has come almost entirely in the field of communicable diseases, and no gain, but a steady loss, for those diseases which for want of a specific etiological factor may at least tentatively be considered as due to faulty methods of living. This condition deserves the most serious consideration from both the laity and the medical profession, and is interesting in its historical relationships. Greek science and philosophy laid the foundations for both the modern understanding of disease and for a sane and wholesome mental and physical life most conducive to longevity. With the decline in Greek culture and the passing of the Age of Reason, civilization crumbled, and the advances so nobly made in science and philosophy were lost in the darkness and superstition of the following centuries. Dogma and superstition replaced scientific research and reason. Sicknes, poverty, and human misery were no longer subjects for experimental study or philosophical speculation. They became the punishment or the discipline of an omnipotent deity or the inflictions of evil spirits, and therefore beyond human interference. Aristotle's definition of the true function of the moralist "to promote good conduct by discovering and explaining the mark at which things aim," became a sacrilege, punishable by torture and death. It was not until the seventeenth century after Christ that, through the sciences of astronomy, physics, and chemistry, phi-

losophy under a revival of Greek influence, as Dewey points out, liberated physical knowledge from bondage and projected the roads upon which we could move forward.

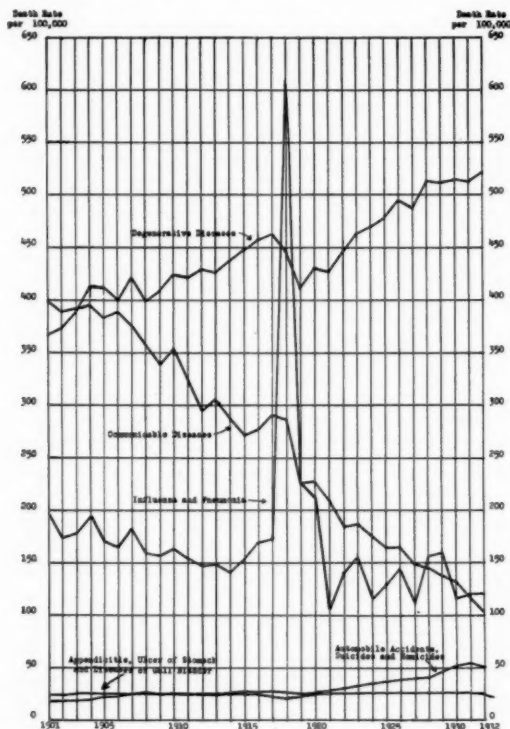


Chart IV.

It has been only within the past half century that there has come a similar demand and a similar opportunity for the emancipation of knowledge of social, legal, economic, political, medical, and religious affairs. It was not until 1842, in England, that the modern public health movement opened, with the report of Chadwick on the sanitary condition of the laboring population of Great Britain. Since that date, and principally within the past quarter of a century, all the communicable diseases have been brought within the scope of effective control, excepting only influenza and pneumonia. The first great movement for health education and volunteer warfare against disease was launched in 1904 by the organization of the Anti-Tuberculosis Association. The extension of normal expectancy eighteen years in the past half century, is alone a sufficient apology for science and for humanist philosophy, shifting, as Walter Lippmann expresses it, "the

center of philosophical interest and debate from the old problem of reconciling an all-good and all-powerful God with the existence of human suffering, to the present problem of how to equip man to conquer suffering and evil."

At birth the present expectancy in the United States is sixty years, and only ten years ago this was fifty-five years, a gain of five years in a decade. This has been accomplished by a continued improvement in the mortality at the younger ages, when a death prevented means the addition of many years to the after lifetime. On the other hand, the situation at the older ages, as we have seen, is becoming steadily worse. This explains why the total death rate has remained practically stationary during the past decade, while the expectation of life has increased five years. Typhoid fever, yellow fever, typhus, smallpox, and malaria have been almost altogether eliminated, and the contagious diseases of children are yielding rapidly to preventive inoculation and sanitation. Tuberculosis continues to show a remarkable decline. Ten years ago we thought marvels had been accomplished against tuberculosis, but it is now only 60 per cent as serious a cause of death as it was ten years ago. Each year it now declines from 7 to 10 per cent. Some authorities believe that in ten years more tuberculosis will be a minor cause of death, less perhaps than diabetes or automobile accidents. In twenty-five years this disease has been brought from above 150 per 100,000 to less than sixty today.

Unfortunately, this improvement in mortality which medical science has brought about from the infectious diseases at the younger ages has been more than offset by increasing death rates at the older ages, and here medicine appears to have made no progress in the effective control of these unfavorable tendencies. This fact certainly constitutes to-day the major challenge to science and medicine. This group of diseases, which, as suggested, may perhaps be attributed to heredity and to our modern methods of life, continues a steadily upward trend, unmodified by all our scientific knowledge and civilization: cardiovascular-renal disease, cancer, diabetes, mental diseases, appendicitis, peptic ulcer, and gallbladder disease, and in addition, deaths from suicide, homicide, and automobile accidents.

Chart IV illustrates very clearly these three trends.

Thirty years ago the death rate from heart disease was 140 per 100,000 of the general population. Twenty years ago it was 157 per 100,000. To-day it is 224 per 100,000.

Thirty years ago the death rate from cancer was 70 per 100,000. Twenty years ago it was 80 per 100,000. Today it is 102 per 100,000.

Thirty years ago the death rate from diabetes was 12 per 100,000. Twenty years ago it was 15 per 100,000. Today it is 22 per 100,000.

I would direct your special attention to that upper sinister line on Chart IV, rising with a discouraging persistency during the current century, indicating the increase in the chronic diseases at middle age and beyond. Each death among our national leaders prior to age seventy-five—our professional men, industrial leaders, and statesmen—from heart disease, high blood pressure, apoplexy, Bright's disease, diabetes, cancer, is registered on that line, and brings its regrettable economic and cultural loss to our civilization. This loss is magnified when as we know that although the newspapers state that "So-and-so" died "suddenly" of apoplexy or heart disease, actually these deaths are not in a pathological sense sudden, but have been preceded by years, sometimes decades, of progressive impairment of physical and mental structure and function, explaining many disastrous mistakes of conduct which seem inexplicable. There are probably in each year ten people partly disabled from the group of diseases represented by the upper line of Chart IV to every one who dies. The total deaths annually are about 600,000, and the total morbidity perhaps 6,000,000.

A modern railroad will not entrust its train to an engineer with thickened arteries, high blood pressure, or heart or kidney disease, because experience has shown that these men cannot be depended upon for prompt and accurate decisions in emergencies. Many beneficent political, social, and industrial enterprises have been wrecked from the same causes. The time must come when it will be considered as important for the president of a railroad to have normal blood supply to heart and brain as in the case of the engineer of the crack passenger express.

If this tendency to an increase in this group of diseases advances during the next half century as it has in the past, our political, industrial, and professional leaders will have an even shorter life expectancy after forty than they have today.

This tendency must be of recent development, as if it had continued from Biblical times to the present our allotted three score and ten would be very materially reduced. However, during the

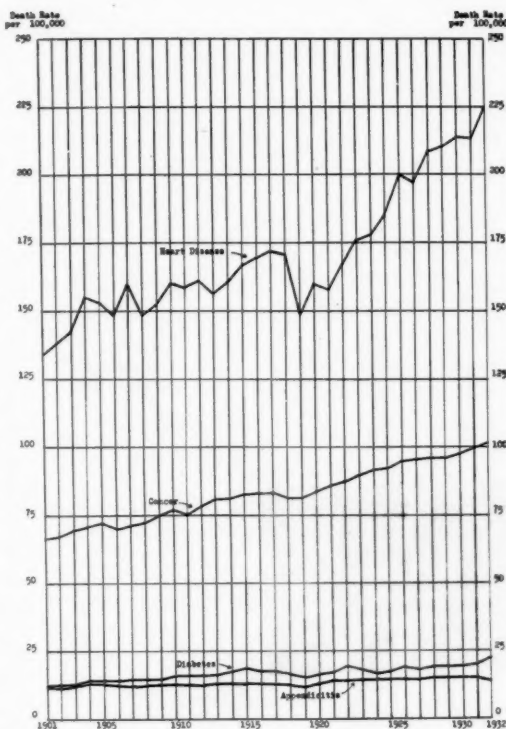


Chart V.

ten years ending with 1932, there is evidence of a decrease in life expectancy for all ages from one year upwards.

It is not a coincidence that the average longevity of the presidents of the United States before the Civil War was 12.13 years longer than of those presidents who followed the Civil War. Nor can Chart V of the death rate from heart disease, cancer, diabetes, and appendicitis—to take four typical examples of diseases which are steadily increasing in spite of all modern science can do—be explained on any other assumption than that there has come about in recent decades a profound change in our methods of life which is exacting a terrible toll in the most valuable and productive period of life. That a man of brains, culture, and vision should falter or weaken mentally or physically at fifty, sixty, or sixty-five, when the world could best benefit from his essen-

tial years of education, training, and experience, is the most tragic event of modern life.

To lower those ominous ever-rising death lines on Charts IV and V is today the major problem of medicine, not only from a health and mortality viewpoint, but also as an important factor in the civilization of the next century. However, it is not apparently a problem of medicine in the narrow sense of drug therapy or surgery. These fields need no apology in the light of their astounding discoveries and benefactions to humanity in the past half century, but they have proved powerless to stem the relentless tide of chronic degenerative diseases, though they have been tried, and often pushed even far beyond the possibility of effectiveness.

So strong is the malign influence of our present methods of life upon health and longevity that, even in several diseases where medicine and surgery have scored their greatest triumph, the mortality is still advancing year by year. As examples we may consider one in the field of medicine, one in surgery, and one in which both medicine and surgery have failed to bring about any favorable results:

The discovery of insulin in 1922 and the development of the dietetic treatment of diabetes are among the most brilliant advances of modern medicine, yet the increase in deaths from diabetes continues to rise steadily year by year, apparently uninfluenced by these discoveries. (See Chart V.)

The surgical treatment of appendicitis is probably the most dramatic advance of modern surgery, yet the increase in mortality from appendicitis year by year equals the persistency of diabetes mortality. (See Chart V.)

The treatment of cancer by surgery, x-ray, and radium, is an equally brilliant achievement, yet deaths from cancer are increasing even more rapidly than those of either diabetes or appendicitis.

When medicine and surgery fail in these three diseases, is it any wonder that they have failed in heart, arterial, kidney, and brain disease—each far more obscure, complicated, and far less amenable to treatment?

Is it perhaps reasonable to suggest that medicine may profitably return more and more to its ancient association with philosophy if it is to guide the coming generations as helpfully in the conquest of these degenerative changes and other diseases due perhaps to faulty living, as it has the present generation in the control of the communicable diseases? And be it said that some of

the true prophets of the profession—Holmes, Weir Mitchell, Osler, Winslow, Wilbur, Mayo, Barker, Cabot, Buzzard, and others, have spoken more and more in the language of Greek medicine and philosophy brought into accord with modern science. The problem which medicine must face for the present campaign is one of guidance in eugenics; in physical hygiene and in psychiatric training for the child; and for the adult, a sane, balanced, and satisfying physical, mental, and moral life, adequately adjusted to his individual environment. Barker expresses this viewpoint: "Medical aid should be sought not only for the cure and for the prevention of disease in single persons but also for guidance toward the desirable goals of life, in other words, for direction as to physical, mental, and moral hygiene. Today, in addition to the functions he formerly exercised, the medical practitioner is often compelled to take over some of the duties that had before been confined to the teacher, the clergyman, the philosopher, and the personal friend."

The need is more than one of longevity alone, for old age is not particularly to be desired unless accompanied by physical and mental vigor which permits happiness to the individual and service to mankind. Mere physical survival "sans teeth, sans eyes, sans taste, sans everything" is not alluring. Epictetus said, "To a longer and a worse life, a shorter and a better is by all means to be preferred by every one." Winslow says today, "If prolonged life and increased vitality are bought at the cost of shorter vision and decreased joy in living, they would be too costly." The Latin adage based on Greek culture, "Mens sana in corpore sano" must be the slogan for medicine, for philosophy, for industry, and for society, in the coming generation. I am afraid it is not appropriate for this generation.

It may be worth while to review very briefly some of the factors in the life of the modern man of our much vaunted civilization from the point of view raised by a consideration of present unfavorable mortality trends.

1. Choice of ancestors. Heredity is undoubtedly the chief factor in longevity, virility, and mental ability. Raymond Pearl has said, "Inherited constitution fundamentally and primarily determines how long an individual will live." Little instruction is given to the young on the subject of

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ergemics, and little attention is paid to what is given. Plato understood the beneficial effects of careful breeding for superior ability better than we give any evidence of understanding today.

and harden the body to changes in temperature than to avoid all drafts or exposure. The object of modern ventilation is to maintain an even, usually over-heated atmosphere—exactly the con-

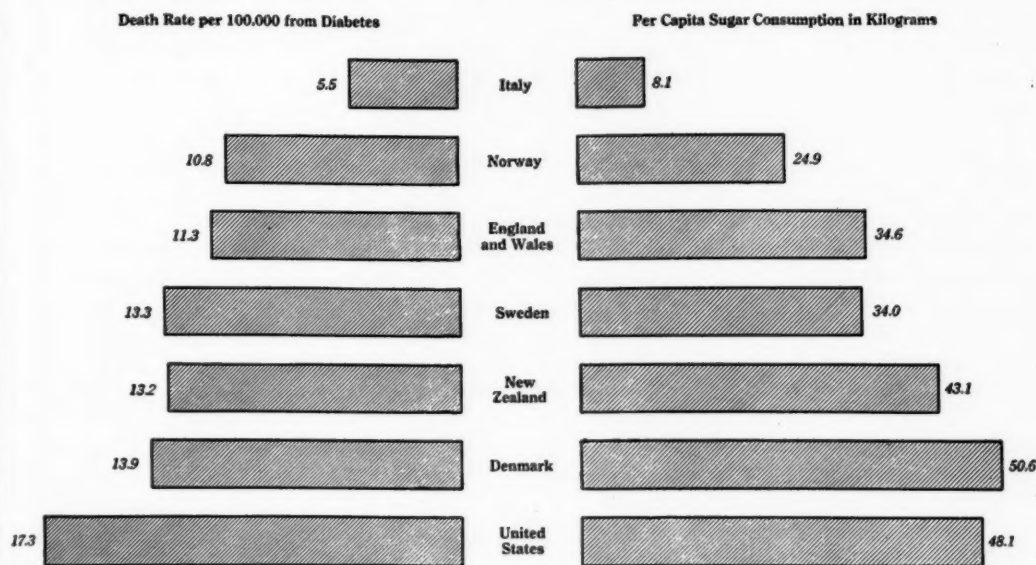


Chart VI.

Tacitus said, "Think of your ancestors and your posterity." Oliver Wendell Holmes' aphorism for health and longevity was to "choose one's ancestors wisely." High blood pressure, diseased arteries, heart disease, mental disease, have strong hereditary tendencies.

With the breaking of social barriers, and unrestricted and unadvised choice of mating, the hereditary effect of attention to family tradition in creating some of our best American stocks is being dissipated, and yet young people might be guided in their mating preference by wise medical education and counsel.

2. Modern environment—of urban industrialized Twentieth Century civilization—speed, noise, constant nervous and physical strain. Accidental automobile and aeroplane deaths are not the only deleterious effects of the speed age. It accelerates as well the normal aging process. Railroad engineers have always been especially liable to heart and arterial diseases. Today every man in a sense is his own engineer.

3. Modern dry, over-heated houses, offices, and factories may be more comfortable; they are not more healthful. It is more healthful to accustom

dition to weaken resistance. We might profitably remember a saying of Epictetus: "They who have a good constitution of body can bear heat and cold, and so they who have a right constitution of soul can meet anger, grief, immoderate joy, and the other passions."

4. The average modern man is more or less under the influence of at least two drugs daily—caffeine and nicotine—often three. The story is always well received of the man who lost his desire for longevity when his physician told him it was conditioned on giving up tobacco, coffee, and alcohol. But we are discussing longevity irrespective of this understandable preference. The enormous quantities of the cardiac poison nicotine which are being consumed today by all ages and both sexes, must at least be considered as a factor in cardiac disease, and perhaps in peptic ulcer.

5. Diet. We over-eat, especially of meat, sugar, and starches, and the effect is exaggerated by insufficient outdoor exercise. Chart VI shows the incidence of diabetes in various countries with the striking parallel in the consumption of sugar. Over-eating is perhaps no more injurious than

our hurried meals—time begrudgingly taken to supply fuel as one fills a car with gasoline. Quiet, interesting, cultured conversation has disappeared from our family or social meal-times. Dr. Holmes' Autocrat of the Breakfast Table would gain scant courtesy today. And yet we know that normal digestion requires more than a sufficient quantity of food. There is a definite and necessary psychic element. Epictetus well said, "At every feast remember there are two guests to be entertained—the body and the soul. What you give the body you presently lose, but what you give the soul remains forever." Constipation is probably merely one and a relatively innocuous result of wrong diet, lack of exercise, and an unhygienic life which may have much more serious results in appendicitis, gallbladder disease, gastric ulcer, diabetes, kidney, heart, and arterial disease.

6. Exercise. Regular physical exercise, baths and rubs, from childhood to old age, were a daily part of a Greek gentleman's sacred observances. It is no wonder they attained to unexcelled national beauty and health. In Greece, time even was measured in units of sport—the four-year intervals between Olympian games. Subways, motor cars, buses, railways, elevators have eliminated for us exercise during the week. To put seven days' normal exercise into a Saturday afternoon or Sunday morning is probably more injurious—especially after age fifty—than no exercise at all. Stewart Chase wisely says: "Modern play takes on too much of compulsion to win, rather than the privilege to enjoy. The nervous strain and exalted egotism of modern college major team athletics are of very questionable benefit to participants and spectators." The growing custom of gambling in sport and social affairs carries the strain of business competition into the all too short periods allotted to recreation. It is, besides, a confession of inability to enjoy and appreciate the quiet and restful charm of nature or of congenial human intercourse. It is a part of our national prodigality in burning the candle at both ends.

7. Unsatisfactory relationship between public and medical profession. There is an increasing feeling among laymen that it is extremely difficult to obtain for oneself or family competent medical service at reasonable cost. State and government control of medical practice is very loose. The average layman is in no position to judge be-

tween the abilities of the various cults and schools, all of which are in many states equally recognized under the law, nor between individual practitioners. When a physician is ill, or his wife is ill, he knows the education, the experience, the honesty, the judgment, the skill, and the professional reputation of the surgeon or the physician he consults. The layman has no means of knowing.

The best members of the profession are the most conservative in operative interference, or in treatment. The ignorant, poorly trained, or dishonest practitioner is too ready to advise operation or some drug or other therapy which may be but a cloak for ignorance or cupidity. On the other side of the picture, medical practice is the most ancient and most honorable of the professions, and is today carried on in most part with devotion and sacrifice. The average practitioner is greatly underpaid, considering the expense of his education, the skill required, and the hardships of his life. His mounting expenses tend to preclude the time and care which he should give his cases but which his moderate fees do not permit.

Furthermore, owing to lack of adequate education, both lay and medical, the average man consults a physician only when he is ill, and the average physician is almost wholly occupied in the treatment of disease. The proper time to consult a medical adviser is before the onset of disease, and periodically from birth to old age, in order that the need for treatment may be avoided. Under a proper relationship between profession and laity, much the larger responsibility of the physician should be to know and instill correct habits of life so that disease may be prevented. The significance of the illuminating experiment of the Metropolitan Life, which indicated that, during a period of five years, the expense of periodic physical examinations and advice given to a certain group of policyholders paid, in dollars, three for one in increased life expectancy, is totally unappreciated by either laity or profession. This question is a most difficult one, but vital to our national welfare.

8. Our confused, superficial, and commercialized system of formal education is undoubtedly responsible for many of the mental derangements which have filled our asylums to overflowing, and is also responsible for even more of the social and intellectual maladjustments of modern society.

which have serious and far-reaching effects, but which may not reach the degree of institutional treatment. The criminal, the anarchist, the divorcee—common types of maladjustments in our social, national, and family life—may often be the result of poor training and education, combined, perhaps, with other physical and emotional defects. Students are crammed with a heterogeneous mass of ill-assorted information, but given little true appreciation or wisdom. The aim is material success, not to deepen the understanding.

Subsequent adult education—largely sensational novels and magazines, drama, trade journals, movies, daily papers and Sunday supplements—does not rise above the mental requirements of a fourteen-year-old child, and cannot develop maturity of thought or depth of character. Classical literature is out of style. We need to make practical application in many of our ills today of the prescription which was suggested by the inscription over the entrance to the library at Thebes, "Medicine for the soul."

Dr. Joseph Collins, in a paper before the New York Academy of Medicine, gave advice on the education of physicians which is equally applicable to industry and the other professions: "Physicians should steep themselves in the humanities. * * * The sort of culture they need is best obtained by familiarity with poets, philosophers, biographers, musicians, and art. I am convinced that the medical student who knows the great classics of the past is better equipped to practice medicine than he who has medical text-books at his finger-tips. * * * The welfare of the soul is enhanced by culture."

9. Spiritual uncertainty and unrest. Lippmann in his "Preface to Morals" has well expressed the present confusion of ideals which tends to

destroy that confident and serene background to life which is so essential to physical and mental health: "The modern man desires health, he desires money, he desires power, beauty, love, truth, but which he shall desire the most, since he cannot pursue them all to their logical conclusions, he has no longer any means of deciding. His impulses are no longer parts of one attitude toward life; his ideals are no longer in a hierarchy under one lordly ideal. They have become differentiated. They are free and they are incommensurable. * * * The religious synthesis has dissolved." While modern interest in health and hygiene may be interpreted as one significant illustration of a changing philosophy of life in which more primitive and supernatural religious beliefs are being supplanted by a humanistic philosophy, nevertheless, the transitional period is leaving many without the spiritual certitude which formerly anchored their emotional life and guided their daily actions.

However, we may not be too impatient of the final flowering of any spiritual growth. The teachings of Plato, of Buddha, of Christ, were the fruit of centuries of Attic, Indian, and Hebrew spiritual experience. Philosophy now has science as a guide, and we may well hope for the evolution of a new religious synthesis in which the harmonious blending of the spiritual and the intellectual may bring a peace and an understanding heretofore impossible, and only held out as a provisional reward in a future life.

If philosophy and medicine sense this need for bringing order out of our present confused civilization, and will contribute in a united effort scientific facts, sound reasoning, and practical guidance towards a saner life, may we not hope that the result will be expressed in the gradual and permanent enhancement of human health, longevity, and happiness?

K-M INFRA RED RAY LAMP, TABLE MODEL NO. 630, NOT ACCEPTABLE

The Council on Physical Therapy reports that the Infra Red Ray Lamp, Table Model No. 630, manufactured by the Knapp-Monarch Company, Belleville, Ill., resembles a reading lamp in outward appearance, the difference being that an electrical heating element takes the place of an electric bulb. The element draws about 300 watts on a 110 volt circuit on either alternating or direct current. The Council finds little difference, if any, in therapeutic effect between this infra-red ray lamp and an ordinary bathroom heater. The advertising lists thirty-one so-called "Common Ills" for which there are given suggested methods of treatment.

Among other misleading indications for the therapeutic use of infra-red rays, the firm lists the following diseases: angina pectoris, asthma, biliousness, heart disease, itch and delayed menstruation. The Council is not in possession of critical evidence to support these unwarranted suggested indications for the therapeutic employment of infra-red radiations. Promotional advertising matter of this kind in effect constitutes an appeal to the public with arguments that are unscientific and may harmfully promote a feeling of false security on the part of the public. The Council on Physical Therapy declared the K-M Infra Red Ray Lamp, Table Model No. 630, unacceptable for inclusion in the Council's list of accepted devices. (*Jour. A. M. A.*, February 3, 1934, p. 372.)

THE RISE OF CLINICAL THERMOMETRY IN THE UNITED STATES*

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HAVING chosen the title of my address all that seemed necessary in its preparation was to consult the indices of some American medical journals extending over a long period of time. For this purpose the *Philadelphia Journal of Medical and Physical Sciences* and its successor *The American Journal of the Medical Sciences* were chosen, first, because their publication has been continuous since 1820, and, second, because of the high standard of the articles appearing in them throughout the entire period. Strange as it may seem, the word thermometer did not appear in the indices of these journals till the year 1866.¹ This almost caused me to abandon the thought of trying to trace the use of the clinical thermometer in the United States, to change the title and simply review Wunderlich "On the Temperature in Disease. A Manual of Medical Thermometry," which was printed in Leipzig in 1868 and translated and published in New York in 1871. In the preface of his book Wunderlich states: "For the last sixteen years my attention has been uninterruptedly directed to the course pursued by the temperature in disease of various kinds." He then must have begun his observations about 1851.

As no discovery apparently takes place without some preliminary observation, it seemed worth while to look up some use of the thermometer in medicine previous to the time of Wunderlich.

First, then, as to the thermometer itself. Galileo invented the thermometer, a thermobaroscope, about 1595. Sanctorius, professor of Medicine at Padua, in 1611 suggested its use to measure the degree of fever in disease. The gradual improvement of the instrument, the difficulty in making two instruments alike and the long struggle to find suitable fixed points of reference for the scale need not be entered into. Suffice it to say that although the evolution of this process is most interesting it was not till 1694 that Renaldine proposed the freezing and boiling points of water as points of reference for

grading the degree of heat. In 1714 Fahrenheit used mercury in a closed tube and devised his scale. Celcius in 1772 divided the interval between freezing and boiling points into one hundred parts and shortly thereafter Märten Strömer inverted Celcius scale to form the modern centigrade scale. It was not till 1822 that thermometers which varied less than a degree at zero were made and even today no two mercury and glass thermometers agree. Furthermore, it was not until Aitken^{4, 6, 7, 8} introduced the self-registering instrument that medical thermometry became possible.

So much for the instrument itself. Poor tools, however, have never prevented man from investigating to accomplish his end, if the necessity or impetus were present. Sanctorius' suggestion lay dormant till 1750 when Martine of Scotland again took it up, followed by de Haen of Leipzig and Vienna and James Currie of Liverpool in 1798.¹⁰ Their observations passed unnoticed.

One must then investigate the reason for lack of interest in the use of the thermometer in medicine. A page to page perusal of the journals mentioned, it was thought, might furnish a clue for the lack of interest among physicians and such an examination was then undertaken. In the entire period from 1820 to 1868 the word thermometer is used in but sixteen original articles by American authors.²

We must digress at this point in our subject. During our colonial period, American physicians took their instructions from Sydenham and Boerhaave, later from Cullen and Brown, and these systems of medicine were followed by that of Rush, at least in Philadelphia. Some time after the beginning of the nineteenth century French medicine came into vogue and it was not till the time of Johannes Mueller (1840) that German medicine began to influence the United States.

Fever is defined by Webster as "elevation of the bodily temperature," but up to 1850 the definition of fever was not so simple. Without quoting directly from the works of the writers mentioned above or the medical dictionaries of

*Address of the retiring president read at the annual meeting of the Minnesota Academy of Medicine, January 10, 1934.

the period preceding this date we find two explanations of fever: first, that it was a spasm or excitation of the arterial system; second, that it was an excitation of the nervous system or brain. That is, fever was an entity and the various forms and varieties of fever were a modification of the fever, "a thing in itself." To make this more clear, fever was regarded as a primary disease and not a secondary effect. "Caloric," an imponderable entity, had an individual status and was not recognized as a form of energy until 1842-1845 and physicians were slow to adopt the new view.

The medical investigator at that time then attempted to find out, if possible, what were the factors which influenced the disease to become typhus fever, yellow fever, intermittent or spotted fever. Their attempts took the form of long essays with titles such as: "The climate, topography, and diseases of such and such a place," "Epidemic and endemic diseases of the summer epidemic at Smithville," etc. In these essays the country, soil, vegetation, prevailing winds, rainfall, daily and seasonal variations in temperature and dew points are elaborately described and tabulated. The factors influencing the form the fever might take were sought in external conditions. No temperature of the patient was recorded in any of these essays, but the patient's condition described as a fever of a hectic, remittent, intermittent, or continued type and various adjectives used to describe the degree of fever as high, slow, moderate, etc. That is to say that fever was known to be present and that was sufficient. This type of medical essays culminated in this country in Drake's remarkable work, "The principal diseases of the interior valley of North America," published in 1850. It was hailed with acclamation as the solver of all our problems. Alas! within a decade or two its usefulness in this regard was gone, though it is still our classic and foremost topographical and sociological survey of the Middle West.

I spoke above of the theories of fever that prevailed at the period mentioned. It is interesting to speculate as to the origin of these ideas. It must have been early noted that occasionally the temperature of a paralyzed limb was cooler than the normal one and also that the occlusion of the blood supply of a limb caused coldness of that limb.

Possibly these observations formed the basis

of the arterial and nervous theory of fever. Many of the temperature observations of this period were taken before and after ligature of a blood vessel for aneurism or comparative temperatures of normal and paralyzed extremities were noted. So comparative temperatures in such cases were recognized as having some prognostic value.

After the above ideas of fever became unsatisfactory there was for a time no accepted theory of fever. As late as 1832 a French writer⁵ states, "The word fever is for physicians a sign which corresponds to those by which mathematicians indicate unknown quantities." Robley Dunglison, in his Medical Dictionary (third edition) of 1842, equivocates when he defines fever as "one of the most frequent and dangerous afflictions to which the body is liable * * *". It is not characterized, however, by any one, but depends on the coexistence of many symptoms."

We shall leave here the further discussion of fever, as shortly after this time the secondary rôle of fever began to be suspected and temperatures now and then came to be recorded. One must say that the normal temperature of the body was still rather vaguely known. One writer (I am referring to American writers only from now on) states that it was 96°, another 90° to 100°, and others 97° to 99°, and still others 98° Fahrenheit.

Thermometers, I may state, in the early days of the nineteenth century and before must have been rather expensive instruments, and the possessor of one often mentioned it specifically in his will. This is perhaps another reason why the temperatures of patients were not taken, the physician not possessing a thermometer. The instrument of that time also was awkward for the purpose.

The first instance of the use of the clinical thermometer in the United States that I have been able to find is by Elisha North, and he mentions it but once:

"At nine o'clock Monday morning (May 14, 1810) her heat measured by the thermometer in the axilla was one degree above the natural temperature."

Note that he does not mention the degree of normal temperature.

The next instance is by Job Wilson, and singularly enough the observations were on patients having the same disease, epidemic cerebro-spinal

meningitis. Wilson took the temperature on four of his patients. I quote one paragraph:

"Monday, June 27, 1814.—Gave oxygen gas to Miss: measured her temperature before inspiring it and found it to be 96° in the mouth and under the tongue, and 78° in her left hand, Fahrenheit Scale. The time of holding the thermometer in her mouth or hand was 15 minutes: in half an hour after first inspiration of this air the mercury in the thermometer rose in her hand in ten minutes to 86° and under the tongue in five minutes to 97½°. On the 28th, measured temperature of her left hand and found it to be 82¾°: after breathing two bottles of oxygen gas (which was in about an hour, by breathing this air for three minutes at a time once in about twenty minutes) in one hour and a half from the commencement of her breathing it, I measured the temperature of her left hand and found it to have risen to 89°. Each time after breathing this gas, her eyes appeared much brighter, her countenance and lips became a livelier red and assumed a healthier aspect: but she complained of being too hot, threw off the bed clothes, and said she wished to be thrown into a brook. After this her recovery was rapid."¹

The narrative of this case is interesting because the temperature was taken more than once and was used to gauge the result of treatment and the prognosis. This view does not appear in the American periodical literature with regard to fever till over a generation later. Wilson also states that the idea of administering oxygen was his own. It is apparent here also that Wilson was familiar with the works of James Currie, as he so states. Currie, in 1798, published his work on the control of fever by cold bathing, gauging the frequency and temperature of the bath by the temperature of the patient. Unfortunately Currie's ideas were disregarded by the English physicians and made sport of in Germany, as were the thermometric observations of de Haen. It may be of interest to note here that Napoleon's temperature was taken once during his last illness in 1821.²

The first instance of the use of the thermometer, found in the journals mentioned, is in 1821, in an article by Richard Harlan of Philadelphia, "On the Generation of Animal Heat." He mentioned an instance where the spinal cord was injured by a fracture of the dorsal vertebræ, and noted that "the portions above the injury were of a natural temperature, while the parts below the fracture indicated by the thermometer a morbidly increased temperature." This was twenty-six years before Sir Benjamin Brody made

known his experiments on "the Elevation of the Temperature after Division of the Spinal Cord" (Med.-Chir. Transactions of Med. Chir. Soc., Edinburgh, XX, 118). Harlan states he can only speculate as to the cause of this and adds that explanation "belongs to the destiny of future ages."

The next we find of the use of the thermometer occurs ten years later in an article: "External Iliac Artery Successfully Tied" (October 5, 1831). "This day the temperature of the affected limb is 84 between the toes and 86 at the inner part of the thigh. That of the sound limb is 94 and 96 at the corresponding points." This was before the operation. October 7, three hours after the operation, temperature of left limb was reported as 85, of the other 91, October 8, the temperature of both limbs was 87. No further temperatures were taken. The patient recovered.

In 1833 Samuel Jackson gives thirty-three case histories of cholera patients. In six only of these was the temperature taken and in only one of the six was the temperature taken more than once during the course of the disease. Apparently these were incidental observations of no clinical import.

In 1834 appears a case history of a paraplegic. Galvanism was applied to the paralyzed limb. "The temperature which previously had been as low as 62° of Fahrenheit thermometer in a very brief space of time arose to 97°." Apparently the author thought the heat was distributed by the nerves.

Not till six years after this observation, namely in 1840, do we find a temperature recorded. A criminal was to be executed and the physicians attempted to take his temperature before and after death.

"The temperature of the body taken in the mouth was 82° Fahrenheit, temperature of the room 70½°. Nine minutes after the execution the temperature of the body near the axilla was 85° Fahrenheit."

In a footnote the experimenters state, referring to the ante-mortem temperature:

"The experiment is imperfect in consequence of the bulb of the thermometer having been removed from the mouth before the mercury ceased to rise—the tube was attached to a metal scale, which evidently producing a disagreeable taste was removed."

What the idea of taking the temperature after death was to elucidate, I do not know, but in

many of the protocols of autopsies one will find the hour after death, the room temperature, and the abdominal temperature of the corpse recorded.

In 1843 in a case of "Ligature of the External Iliac Artery for Aneurism" comparative temperatures of the limbs were taken for four days.

In 1847 James Trask writes, "On the Nature of Phlegmasia Dolens." Here the first temperature chart appears. Fifty-three cases are charted and temperatures given, but no thermometer was used, the temperatures being recorded as warm, warmer, natural, etc. The charting shows an advance in ideas at least.

An interval of twelve years now elapses (1855), when we find in "Yellow Fever—Considered in Its Historical, Pathological, Etiological, and Therapeutical Relations," by R. La Roche:

"The increased heat of the blood beyond the healthy standard in the early stage of some forms of Yellow Fever, is placed beyond a possibility of a doubt and cannot be a matter of astonishment. It is, of course, not peculiar to the disease and is generally, though not always, found in other fevers and in phlegmasia."

One notes here that the idea of fever is undergoing modification, and also that but little knowledge existed as to actual temperature in disease.

We wait now four years more, when we find an article written by William A. Hammond and S. Weir Mitchell on "Experiments with Curare." Here are carefully recorded temperatures of a rabbit and a pigeon at stated intervals until the time of death, after transplanting a portion of the poison in a wound (the hypodermic syringe had not as yet been invented). It is true that this does not record temperatures in a human being, but it probably marks the beginning of experimental medicine in the United States and the bringing into medicine here the necessity of scientific methods. It also shows that thermometers suitable for taking human temperatures were available. After this time we find in the reports of the meetings of the staff in the Pennsylvania Hospital many of the internes in reporting the cases give records of the temperature. At first the temperature was taken once or twice during the course of the disease, then daily, and later twice or three times a day. This procedure possibly seemed an unnecessary stunt on their part to the elder members of the profession and perhaps an over-refinement of observation. But evidently some one was advising

them and they were getting the idea of the significance of the body temperature in disease, though little importance was attached to the observations. Horatio C. Wood, in 1863, reports eight cases of sunstroke with temperatures given. He says:

"Three thermometers were compared and found to agree in these cases, so there can be no doubt as to the reliability of these observations."

Hitherto I have cited only observations made by American authors, but, in 1866, there is a review of an article from the London *Lancet* of November 4, 1865, by Sidney Singer. He says:

"During acute inflammations of any tissues of the body, the temperature is always abnormally elevated, often greatly so. Not infrequently it rises from 98 or 99 (the normal temperature in the axilla) to 103-105 Fahrenheit. The amount of elevation is proportional to the intensity of the inflammation, and thus the temperature measures the intensity and duration."

This marks a new pathology, or at least the first intimation of it in the *American Journal of Medical Sciences*. Undoubtedly Singer got thermometric ideas from Wunderlich. In 1867 a long review of an article by Austin Flint, Jr., appears. The original was published in the *New York Medical Journal* in November, 1866. Flint says:

"The thermometric phenomena of disease have been studied of late by clinical observers in Germany and Great Britain * * *. It is proper to state at the outset that my own experience in the use of this instrument has extended over only a few months, but this short period in which I have used the thermometer in clinical studies has afforded striking illustration of practical value."

He then concludes, summarizing his remarks with ten propositions relating to the diagnostic and prognostic use of the thermometer. This article apparently was the first contributed by an American author on the use of the clinical thermometer and if not the first certainly the first that was widely read and concretely brought the idea of clinical thermometry before the American medical profession.

I wish to thank Dr. J. M. Armstrong of Saint Paul for his aid in looking up references and his suggestions in writing this paper.

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GANGRENOUS GALLBLADDER*

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UNTIL recent years, gangrenous gallbladder was believed to be of rare occurrence. Vest, in an exhaustive study, was able to find only seventy-one reports in the literature to 1933, of which fifty-five were in sufficient detail to permit him to make an analysis. He did not include in this number the sixty cases reported from The Mayo Clinic by Baumgartner in 1929 after study of 4,575 diseased gallbladders. Vest reported nine additional cases of gangrene of the gallbladder. He gave the incidence as 0.7 per cent in a series of 1,000 operations on the gallbladder in the Johns Hopkins Hospital.

In reviewing 508 cases of acute cholecystitis found in the course of 9,446 operations on the gallbladder performed at The Mayo Clinic, it was discovered that there were sixty-one instances in which the gallbladder had perforated. A further study of the 508 cases reveals that there were sixty-eight in which there was gangrene of the gallbladder, or an incidence of 0.72 per cent. In sixty of these, the gangrenous process was extensive and involved almost all or all of the viscus; in eight it was only partial. In thirty-three additional cases, the gallbladder contained single or multiple small areas of necrosis but it is debatable as to whether these small necrotic areas represented gangrenous processes.

Any condition that causes obstruction to the circulation of the gallbladder may be responsible

for the production of gangrene. The extent of the involvement depends on the site of the interference with the blood supply and accounts for the presence of partial or complete gangrene. Vest summed up the possible causes of obstruction to the circulation as "edema, thrombosis, embolism, pressure by stones, tumors, enlarged glands, spasm, torsion, distention, gas bacillus infection, hyperplasia of the cystic duct mucosa due to chronic inflammation, and severe acute infection." He stated that with the exception of torsion, usually more than one of the conditions are present to account for the gangrene. Baumgartner felt that toxins might also play a part in the etiology.

Stones were present in sixty-seven of the sixty-eight gangrenous gallbladders. In the one case in which stones were not found, the possibility of a stone being buried deep in the cystic duct could not be ruled out, for extensive exploration was inadvisable on account of the severity of the inflammatory process. In only two cases were stones found in the common bile duct. The preponderance of calculi in our series of cases of gangrene of the gallbladder is significant. Whether the circulation was disturbed by direct pressure from the stones, by infection, by edema of the wall of the gallbladder, or by overdistention of the viscus, is debatable.

It seems rather unusual that the number of males exceeded the number of females; thirty-nine of the patients were males and twenty-nine

*From the Division of Surgery, The Mayo Clinic, Rochester, Minnesota.

females. Two of the patients were less than thirty years of age, and three were more than seventy years of age; all five were males. The average age of the sixty-eight patients was more than fifty years.

Two patients had undergone cholecystostomy respectively four and fourteen years before the present trouble. Twenty-nine gave histories indicative of previous acute attacks of biliary disease, whereas thirty-five gave histories suggestive of trouble with the gallbladder, but had had no acute attack until the one which caused them to come to the clinic. Four patients in the series had never had any symptoms referable to the biliary tract until the attack in which they came for consultation. On admission the average duration of the attack in the sixty-eight cases was seven days; this accounts for the fact that in many instances the attack was subsiding at the time of our first examination. The average period of observation before operation was six days, about two and a half days of this time being spent in the hospital. This means that an average of thirteen days elapsed from the onset of the acute attack until the gallbladder was explored. In comparatively few instances did the general condition of the patient seem to require his immediate admission to the hospital.

As would be expected with cholelithiasis, colicky pain in the right upper abdominal quadrant was the most persistent complaint; it was made in fifty-five cases. Thirteen patients stated that they had noticed jaundice with the attack. Ten had had high fever and severe chills. Our initial examination revealed jaundice of some degree in eleven cases. In only five of these was there any appreciable increase in serum bilirubin. Marked tenderness under the right costal margin was the most prevalent physical sign and was present in forty-nine cases. Rigidity of the right rectus muscle could be demonstrated in twenty of these. The presence of an extensive inflammatory process was indicated by a palpable mass in the right upper abdominal quadrant in twenty-six instances. Forty patients were found to have a temperature above normal, usually about 100° F.; the highest temperature was 106° F. Often the findings at operation were out of all proportion to the number of leukocytes, which was 10,000 per cubic millimeter or more in only thirty-one cases; in three of these the count was more than 25,000. In forty-two cases it was

inadvisable and unnecessary to obtain a roentgenogram of the gallbladder because of the evident acute stage of the disease. In the other twenty-six cases a roentgenogram was taken. In sixteen cases the gallbladder was reported to be nonfunctioning; in one case, to be nonfunctioning with stones; in three cases, to be poorly functioning; in four cases, to be poorly functioning with stones, and in two cases no abnormality was revealed.

Cholecystectomy was performed in forty-nine of the sixty-eight cases, with three deaths. Partial cholecystectomy was carried out in eleven other cases, and a dressed tube was sutured to the remaining portion of the gallbladder; there was one death in this group. In eight cases cholecystostomy was performed, with no deaths. In most instances there was evidence of some degree of localized peritonitis; in one case general peritonitis was suspected but the patient recovered. The common bile duct was opened and drained in only four instances; in two of these, stones were discovered. It is of interest that the patients whose common bile ducts were opened had uneventful convalescence. Perforation of the gallbladder had occurred in eleven cases, and two of the deaths were in this group. In five of the cases in which the gallbladder had perforated, an abscess had formed about the site.

Conclusions

It is evident that there is no accurate guide to the diagnosis of gangrene of the gallbladder. In going over the past histories it will be found that while some patients will have had previous acute attacks, others will have had only mild symptoms referable to the gallbladder. A few patients may be found who never have had any previous symptoms referable to the gallbladder. As a rule, if a gallbladder is gangrenous, one discovers a greater degree of tenderness and rigidity in the right upper abdominal quadrant than in uncomplicated cases of acute cholecystitis. A definite mass was palpable in about a third of our cases, which should lead one to suspect the presence of a severe inflammatory process. Fever and leukocytosis are somewhat indicative in about half of the cases, although these evidences are frequently misleading. In most instances, roentgenologic examination of the gallbladder is not necessary or advisable, for an acute cholecystic condition is evident.

If calculi are discovered in the common bile duct, or if there is strong evidence of the presence of stones, one should not hesitate to open the duct. The hazard of leaving stones in the common duct seems greater than that incurred by removing them and establishing drainage of the common duct in the presence of gangrene of the gallbladder. Cholecystectomy is indicated in most cases. Convalescence is as satisfactory as after cholecystostomy, and the possibility of further cholecystic disease obviated. If it is evident that the risk of the operation will be materially increased by the dissection necessary for total removal of the gallbladder, partial cholecystectomy may be carried out, leaving in situ that part of the wall of the gallbladder which is adherent to the liver. This remnant is folded about a dressed tube and sutured to it. The mortality rate in the 68 cases of gangrene of the gallbladder was 5.88 per cent. It is true that all four deaths occurred in cases in which partial or total

cholecystectomy was performed. Marked local peritonitis was present in two of these cases at the time of operation, and in both instances the patients also had definite acute appendicitis. Death in the third case was caused by bronchopneumonia, and in the fourth case, it resulted from a pulmonary embolus.

It seems advisable to operate early in most cases of acute cholecystitis and, in any in which perforation of the gallbladder or gangrene is suspected, prompt exploration is indicated.

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DIET IN THE TREATMENT OF GALLBLADDER DISEASE*

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That dietary management plays a very important role in the medical treatment of gallbladder disease is generally conceded. Mason and Blackford advised medical treatment in two-thirds of their cases. The remaining third were treated surgically at once.

In arranging a diet for patients with gallbladder disease a number of factors must be taken into consideration. First of all, impairment of liver function is almost always present. The injured liver may be unable to metabolize protein cleavage products and variable symptoms of toxemia are the result. In the second place, gastrointestinal disturbances, both secretory and motor, resulting in indigestion and flatulency, may be due to the lack of bile or congestion of the intestinal mucosa. This includes gastric hypo- or anacidity and complete achylia.

The amount of protein in the diet should be restricted according to the degree of liver func-

tion impairment present in the case under consideration. It has been found that low protein diets tax to a lesser degree the detoxifying power of the liver because there are fewer toxic split protein products which the liver must convert into non-toxic urea. It has also been shown that animals with damaged livers live longer on a low protein diet. High carbohydrate and low protein diets are consequently indicated in all cases of gallbladder disease. Protein, however, should not be reduced below one gram daily per kilogram of body weight.

Regeneration of damaged liver parenchyma is accelerated with a low protein intake. Meats produce more toxic by-products than other proteins and should therefore be restricted to two or three small servings per week or eliminated entirely. Meats should be free from fat and should be either roasted or grilled. Milk is perhaps the best source of protein. One liter provides about 40 grams. One or two eggs may be added to the menu occasionally. Broths and

*Read before Hennepin County Medical Society, December 27, 1933.

meat soups are of no value and should be avoided.

When the amount of bile emptied into the intestinal tract is decreased or absent, putrefaction is encouraged. This is another reason in favor of low protein intake.

The carbohydrate foods should be bland and simple. The bulk of these may be in the form of cereals, rice, toast, and mashed, boiled or baked potatoes. Preserves, honey and other sweets may be taken moderately. Orange or fresh tomato juice may be added as desired to supply vitamins. As a rule raw fruits and leafy vegetables are not tolerated so well. Puréed vegetables may be tried. If constipation results because of loss of bulk, agar may be added to the food.

Fats in the diet of patients with gallbladder disease should be restricted both as to quantity and quality. Fried and greasy foods are especially troublesome. Some fat, of course, is necessary in order to supply needed calories and important vitamins. They should be used sparingly, however. The most desirable fats are butter, cream, egg yolk and occasionally a little crisp bacon. Foods with a high cholesterol content such as liver, kidney, brains, fried fish, fried meats, stews, goose, duck, game, pork, sweetbreads and spiced foods should be avoided. Dried peas and baked beans contain phytocholesterol and should also be eliminated from the diet. The oral administration of bile salts aids in the emulsification and absorption of fat and increases the output of bile from the liver.

The gastric secretory function of the patient must be considered when prescribing his diet. All greasy and acid foods must be omitted in cases of hyperchlorhydria. Most fruits increase gastric acidity because they leave the stomach slowly. Vinegar, mustard, horseradish, spices, coffee, cider, lemonade, ginger ale, cocoa, chocolate and alcohol in any form should be omitted. In addition to fried foods and pork, these patients should also avoid goose, duck, sausage, tongue, lobster, and crabmeat. Vegetables such as tomatoes, cabbage, cauliflower, cucumbers, navy beans, radishes and beets are best omitted. Allow fresh well prepared peas, lima beans, puréed corn, carrots and spinach, and asparagus tips.

Patients who have hypoacidity or achylia, on the other hand, will do well with acid fruits, veg-

etables and buttermilk or other acid beverages.

Acceptable desserts may include custards, light puddings, sponge cakes, gelatines and possibly stewed fruits. Ices, ice cream and all sweets may not be well tolerated. Pastries are, of course, out of the question. Individual likes and dislikes should always be taken into consideration.

Since bile remains stored in the gall bladder during the fasting state it is better for patients with gall bladder disease to eat frequently—at least five or six times a day—in order that the flow of bile may be encouraged. Frequent feeding is especially indicated in the presence of hyperchlorhydria. The fact that attacks of colic occur more often during the night may be due to the distention of the gall bladder with bile which accumulates during the fasting period. The last food should be taken just before retiring and some light food at the bedside, so that the patient may eat in case he awakens during the night, is desirable. The liberal drinking of hot or cold water on rising, with meals and between meals helps to dilute the bile.

Cases of well defined chronic cholecystitis, not relieved by medical treatment, should be treated surgically. Mason and Blackford found that one-third of their patients continued symptom-free on dietary and medical management; one-third came to operation three to five years later and one-third were surgical at once. In this paper I am not attempting to establish just when a patient is definitely in need of operation and when he should be treated medically. In many cases, medical treatment is imperative because the patient has some complicating disease which does not permit operation. The risk of serious consequences during medical treatment has been found to be no greater than is the risk in surgery. Many patients need to restrict their diets even after operation because of permanent liver damage.

During an acute flare-up in chronic cholecystitis the diet should be limited to cereal soups, gruels, milk and lime water and stale bread or toast. Simple puréed vegetables and possibly orange juice may soon be added.

During an attack of acute catarrhal cholecystitis it is usually best for the patient to abstain from all food for eight to ten hours though hot tea and dry toast may often be allowed one hour after vomiting ceases. After nausea and pain have entirely subsided, feed first simple gruels,

then toast or bread and butter with hot tea. After the second day add other simple foods.

Conclusions

The diet in chronic cholecystitis should be simple and consist largely of carbohydrates.

Frequent small feedings are desirable in order to stimulate the flow of bile. Overfeeding at any time is likely to cause trouble.

Proteins should be restricted in proportion to the degree of liver function impairment present, yet allowing a sufficient amount to balance nitrogen elimination.

Fats and greasy foods, especially those rich in

cholesterol, should be greatly restricted, allowing only sufficient fat to supply needed calories and vitamins.

Plenty of water should be taken before meals and between meals.

The caloric needs of the patient should be taken into consideration in prescribing a diet and necessary vitamins should be administered in concentrated form if the menu does not contain them.

The patient should be weighed regularly in order to determine the effect of the diet.

In acute conditions fasting for a brief period and further restrictions are necessary.

PRIMARY TUBERCULOSIS OF THE GALLBLADDER*

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ALTHOUGH tuberculosis of the liver and intrahepatic biliary passages is no great rarity, tuberculous cholecystitis unassociated with widespread tuberculous peritonitis is one of the rarest of pathologic findings.

Since 1900, there have been very few references to this subject in the literature in America. It has been suggested¹ that the rarity of this condition is due to a special resistance of the organ to the bacillus of tuberculosis, as it has been demonstrated by Hanot and Létienne that very infrequently is the bacillus of tuberculosis found even in the bile from the cystic duct of patients dying from general tuberculosis. However, Sergeant has demonstrated that the bacillus of tuberculosis in the bile of guinea pigs and dogs does not produce tuberculous lesions of the gallbladder unless that organ has been injured or the common duct ligated. It has been suggested that the fat-splitting and fat-dissolving properties of the bile and pancreatic fluid are factors in this resistance, possibly attacking the waxy coat of the bacillus itself.

In 1926, Rankin and Massie reported a case in which tuberculous peritonitis had developed after cholecystostomy for tuberculosis of the gallbladder. They stated that there were fifteen cases

of tuberculosis of the gallbladder reported in the literature. In 1928, Case reviewed the literature on this subject and collected ten cases of what he considered to be primary tuberculosis of the gallbladder. Recently, the condition has come under our observation and we wish to report the following case:

Report of a Case

A man, aged forty-six years, registered at The Mayo Clinic, June 28, 1933. He complained of a series of attacks of pain in the right upper quadrant of the abdomen and of gaseous dyspepsia. The onset of this condition had occurred in February, 1933, five months previously, when an attack of very severe pain in the right upper quadrant of the abdomen associated with nausea and vomiting had developed. This severe pain had lasted for about twenty-four hours and had been followed by a temperature of 105° F., by jaundice, and by weakness. There had been residual soreness in the right upper quadrant of the abdomen for two weeks. The patient stated that he had been well following this attack for the next four months. Then there had been recurrence of the severe pain in this right upper quadrant which had continued with a series of colics in this region for about a week. He had been unable to work for two weeks.

At the time of his admission, however, the patient felt fairly well. His only complaint then was of gaseous dyspepsia following heavy, or fatty foods. He was well-developed and moderately well-nourished. His blood pressure in millimeters of mercury was 120 systolic and 70 diastolic, his pulse rate was 72 beats per

*From the Division of Surgery, The Mayo Clinic, Rochester, Minnesota.

minute and his temperature 99° F. The general physical examination gave essentially negative results with the exception of slight tenderness in the right upper quadrant of the abdomen. Urinalysis likewise gave negative results. The value for hemoglobin was 12.3

The patient's convalescence was uneventful and he left the hospital on the fourteenth postoperative day. It is of interest at the time of his discharge that there was no evidence of pulmonary tuberculosis or of other tuberculous lesions (Fig. 1).

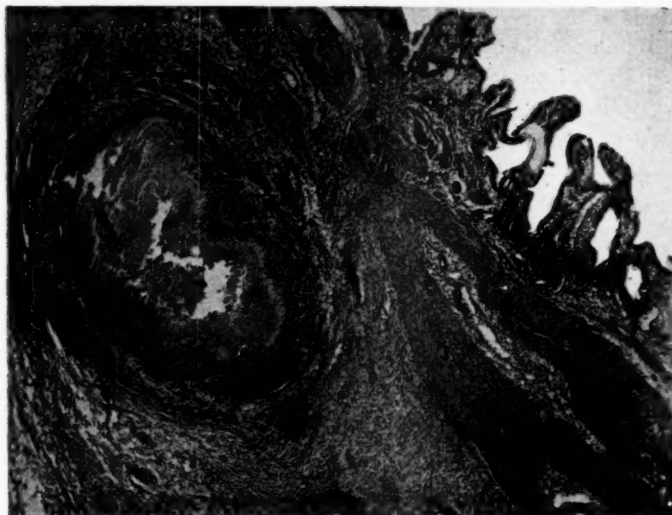


Fig. 1. Tubercle adjacent to mucosa in the wall of the gallbladder.

mg. per 100 c.c. of blood; erythrocytes numbered 4,480,000 and leukocytes 5,800 per cubic millimeter of blood, and the test for flocculation gave negative results. Roentgenologic examination of the gallbladder disclosed it to be nonfunctioning. A diagnosis of subacute cholecystitis with stone in the common duct was made and operation was advised. This was refused and the patient returned home.

He returned to the clinic October 10, stating that since his previous admission he had been troubled with an almost constant distress in the right upper quadrant of the abdomen with occasional sharp pain in that region. There also had been acid eructations and heartburn after rich or fatty foods. There had been no jaundice. The general examination gave essentially the same results as the previous one.

Operation was performed October 11, through a right rectus incision. The gallbladder was subacutely inflamed. It had perforated at its fundus into the liver forming a zone of induration. The common duct was slightly enlarged; it was opened, but no stones were found in the hepatic or common ducts. A small scoop could not be forced through the ampulla into the duodenum. Rather than injure the duct it was not forced. A T-tube was sutured into the common duct to be left in for six weeks. Exploration of the stomach and duodenum gave negative results. Microscopic examination of the removed tissue revealed subacute purulent cholecystitis on a basis of chronic cholecystitis, with associated chronic caseous military tuberculosis.

Comment

In a review of the records at the clinic, we found that there were four other cases in which a similar diagnosis had been made. In one instance, the condition was associated with multiple gallstones, and was found in the wall of a chronically inflamed gallbladder. In two other cases, it was associated with tuberculous peritonitis which was limited strictly to the visceral and parietal peritoneum in the right upper quadrant of the abdomen, the process seeming to originate from the diseased gallbladder. The fourth, similar to one of the foregoing, was associated with an inflammatory tuberculous mass in the liver which seemed to originate from a similar pathologic lesion of the gallbladder. These cases on physical examination revealed no evidence of tuberculous lesions elsewhere.

Whether the gallbladder represents the initial tuberculous lesion or is secondary to tuberculosis elsewhere cannot be determined from the data at hand. At any rate, the lesions seem to be primary in the abdominal cavity. The means of

entrance of the bacillus of tuberculosis into the gallbladder is merely a matter of conjecture. It may be carried by the blood stream from a distant focus by the hepatic artery or portal vein, or it may enter from the intestine directly through the bile duct or the gallbladder secondary to tuberculosis of the liver. Tuberculosis of the gallbladder has no clinical entity and cannot be diagnosed, clinically, from the other forms of chronic cholecystitis. Its diagnosis rests wholly on pathologic examination.

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SINUSITIS AND ASTHMA*

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PRACTICALLY all theories of asthma except, perhaps, the modern theory of specific sensitivity, touch at some point on nasal pathology. Such concepts early led to therapeutic attack on the pathology assumed to be present. This was all the more logical because asthma is frequently associated with nasal symptoms, such as occlusion, sneezing, tickling and watery discharge, symptoms now recognized as manifestations of allergy but usually described by the patient as a "cold in the head." There grew up in the early days of rhinology an imposing terminology of disease; inspection of old text books yielded a list of twenty names, all of which evidently referred to allergic manifestations. Treatment, based on the vaguest pathological knowledge, included every type of local application and manipulation that could be applied to the nose; the results were most uncertain and bizarre.

The concept of allergy as a constitutional condition which may be manifested in almost all tissues goes far to explain the association of nasal symptoms with asthma and is accepted widely but not universally as explaining, on the basis of similar etiology and pathology, the undoubted association between nasal disorders and asthma. Such a theory leads logically to attempts at controlling the common factor in the two conditions, whatever it may be; radical sinus surgery becomes a means of last resort and then

only on the indications usually accepted in non-asthmatic patients.

It has also been assumed that the sinus disease causes the asthma. Such a theory leads primarily to the conclusion that all pathological tissue must be removed and ultimately to a great deal of operating with results that are often dubious. Figures vary greatly but definite reports of permanent cure through surgical therapy alone are so infrequent that the above theory is not tenable.

Modern classification of inflammatory diseases of the nose and accessory sinuses recognizes acute and chronic suppurations (empyemata), non-suppurative or hyperplastic lesions (acute and chronic catarrhal), and a mixture of these two. The non-suppurative conditions, so-called hyperplastic rhinitis and sinusitis, characterized by thick, grey, edematous and polypoid membrane in nose and sinuses, are especially important because of their frequent occurrence and perplexing because of the difficulty in assigning them their proper rôle in the production of asthma. Hansel¹ feels that such hyperplastic tissue is the end result of nasal changes which started as vasomotor or hyperesthetic rhinitis and progressed through the so-called acute and chronic catarrhal stages to the terminal condition described above. He also states that all hyperplastic lesions should be considered allergic until proved otherwise.

Hyperplastic tissue, because of interference

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with drainage and ventilation by edema, is especially susceptible to secondary infection. This is clinically important in its relation to asthma and at the same time modifies the microscopic picture of allergy by the addition of characteristics essentially inflammatory in type.

That hyperplastic tissue may, in the absence of suppuration, carry infection, is not so generally recognized. Tunis¹² reports finding streptococci in slides of antral membrane (postmortem) and Kistner² has found streptococci in slides made from operative material and in cultures from ground-up membrane. The latter expressed the belief that hyperplastic tissue is the end result of low grade chronic infection superimposed on an allergic basis. Mullin⁵ remarks that infection in the lining of a sinus may be more important than free pus in its cavity.

Adequate experimental and clinical proof is at hand that infection in the upper respiratory tract may have a direct effect on the tracheobronchial tree, either by aspiration, contiguity or through blood or lymph channels with the final production of peritracheal and peribronchial fibrosis with its predisposition to chronic bronchitis, pneumonia and bronchiectasis, the mechanism for which was demonstrated experimentally by Mullin^{6, 7, 8} and by McLaurin.⁴ These complications are particularly undesirable in asthmatics.

Whether or not long existing foci, suppurative or non-suppurative, render the patient sensitive to his own infection by the production of an allergy dependent on bacterial sensitization is a moot question in connection with which Kolmer³ says: "Whether or not bacteria and their products may produce sensitization and allergic reactions is still in doubt; personally I believe that they may and that some cases of asthma may be due to allergy caused by streptococci, staphylococci and other bacteria growing in the upper and lower respiratory system, including the tonsils, abscessed teeth and nasal respiratory system.

Frank suppuration in the nasal cavities is usually recognized without trouble and should be dealt with on the indications that would be accepted in the non-asthmatic patient. Difference of opinion exists, however, concerning the treatment of the non-suppurative (hyperplastic) lesions, capable observers reporting good results

from their removal and others obtaining very little, if any, result from such procedure.

It should be borne in mind in this connection that diffuse hyperplasia, with or without polypoidosis, may be produced by chronic infection, allergy, or a combination of these factors and may or may not harbor infection. Casual inspection of the nasal chambers and X-ray studies with opaque media will demonstrate the presence or absence of such pathology. Whether it is entirely an allergic reaction, in which surgery is not indicated (removal of obstructing polypi excepted), or whether it is due to chronic infection or to allergy plus infection constituting, according to some theories, a focus of infection which should be removed, is a problem belonging peculiarly to the rhinologist.

A rhinologist's study of such a case should be comprehensive and may be completed without being cumbersome or too annoying to the patient. The usual inspection should be done and the sinuses transilluminated. Cultures should be taken from the spheno-ethmoidal area and nasopharynx, looking especially for streptococcus. Vaccines should be made from all organisms present and skin sensitization tests made to discover to which, if any, the patient is sensitive. Differential cell counts should be made on nasal smears, to determine the percentage of eosinophiles and neutrophiles; eosinophilia may be as high as 75 per cent in allergy. X-rays should be taken after the instillation into the sinuses by suction of an opaque medium. After these have been examined all further work may be done at the expense of one antrum puncture. At this puncture antroscopy may be done; this usually gives us complete information as to the presence of hyperplasia, polypi, pus, etc. Sterile salt solution is injected and withdrawn, half to be cultured and half to be centrifuged for the ordinary differential cell count to determine the relative percentage of eosinophiles and neutrophiles. Finally, if the first plates were not conclusive a little brominol may be instilled into the antrum through the needle and a single plate made to map exactly the mucosa. Such studies give us the bacteriology and cytology of the nose and accessory cavities and help us to recognize and evaluate the factors of allergy and infection. Taken in conjunction with the skin tests and

results of treatment, they aid us in deciding whether or not operation is indicated.

What shall be the treatment of a non-suppurative focus of infection in intrinsic asthma? In answering this question in any given case one must consider not only the tendency of such lesions to render the patient susceptible to repeated acute head infections and permanent lesions in the lower tracheobronchial tree but also the possibility of such a focus causing the asthma by the production of a bacterial allergy. Finally one must endeavor to determine the probable effect of operation upon these various factors.

Theoretically the surgical treatment of such a condition should lessen the incidence of infection in the respiratory tract; my experience has been that the local symptoms, obstruction, discharge and the tendency to acute head infections are frequently improved and improved enough so that the operation has seemed justified. Such improvement varies in its permanency and completeness but is of sufficient degree to warrant its serious consideration in selected cases.

Consideration of the effect upon intrinsic asthma of the surgical treatment of a non-suppurative focus of infection enters debatable ground and involves the question of bacterial allergy. Equally competent and careful observers hold, on the one hand, that foci of infection have no bearing on asthma, their treatment being therefore futile, and on the other hand that in certain types of asthma, especially intrinsic asthma, foci of infection may produce a bacterial allergy responsible for the asthma and should, therefore, be eliminated as completely as possible. Ample support may be found for either position. Rackemann and Tobey,⁹ reporting on 1,074 cases followed in the asthma clinic of Massachusetts General Hospital, found more foci of infection in intrinsic than in extrinsic asthma, that the results of treatment of extrinsic asthma were better when infection was not present, that the presence of infection in nose or throat bears little relation to the outcome of the asthma and that the elimination of foci is disappointing so far as the asthma is concerned, a permanent cure by such methods being obtained in only 5 per cent of cases.

In similar vein is a late report from Toronto¹³ giving the end results of radical antrum operations in thirty-one cases of bronchial asthma. All experienced considerable relief for from two

weeks to six months (average four months), but in only two cases were satisfactory results permanent enough to justify the operations.

Very different is the report of Smith¹⁰ of Grand Rapids. This author finds definite disease in the nose and sinuses in 82 per cent of his cases. Radical operations resulted in complete cure in 75 per cent of cases and marked improvement in 26 per cent. He concludes that a large percentage of cases of asthma is due to chronic nasal sinus infection, that between 70 and 80 per cent of these patients can be cured by radical operation and that the unsatisfactory results of surgery in asthma are due to its incompleteness.

Smith,¹¹ of the Cleveland Clinic, discussing a series of 314 cases, found chronic sinus infection, usually catarrhal (hyperplastic) in type, in every case of intrinsic asthma. Forty-four sinus operations were done in such patients with a subsidence of symptoms of from two to four months, lessened severity on recurrence and improvement in general health. While he does not unreservedly recommend such operations he feels that the patient may be definitely benefited thereby.

It is difficult to reconcile such divergent views and results. Failure to control allergic factors, especially in extrinsic asthma, will certainly doom to failure any operative measures because the new-formed mucosa will be just as allergic as that removed. It is rather common practice, judging from the literature, to accept negative results of routine skin tests as ruling out allergy. That such tests may be misleading is well recognized as is the fact that the successful detection and elimination of the offending allergen often demands much time and personal effort on the part of the physician.

That some of the unsatisfactory results reported may be due to failure to recognize and eliminate allergic factors, is suggested by a study of case reports in which x-ray evidence of hyperplasia and negative skin tests have been accepted as adequate operative indications. It is well to remember that either allergy or infection may produce clinically similar lesions of hyperplasia with or without polyposis and that it is essential to recognize and separate these factors to avoid useless operation in purely allergic cases. The repeated study of the cytology and bacteriology of the nose and sinuses, as outlined above, to-

gether with the usual clinical and x-ray examinations, will be of help and are to be recommended.

Advocates of the surgical treatment of infection attribute its failure to inadequate technique and incomplete removal of foci. That such foci are not always amenable to surgical removal by any means is a fact that sometimes escapes observation. Witness the variations in the ethmoid, some of which are surgically inaccessible by any route.

In my own experience radical sinus surgery has not resulted in the permanent cure of asthma. The patients have been relieved, occasionally almost completely, for from one to six months; in all, however, recurrence has taken place in variable degrees of severity, some milder, some more severe. I cannot, therefore, as a result of my own experience recommend the surgical treatment of non-suppurative foci of infection in intrinsic asthma as a permanent cure for this most baffling disease.

Conclusions

1. Either allergy or infection or both may be responsible for nasal hyperplasia.
2. Every effort should be made to recognize the presence of and evaluate the relative importance of these two factors.
3. No patient with asthma should be submitted to operation until every effort has been made to eliminate or control all allergic factors.
4. Suppurative lesions in the nose and accessory sinuses of asthmatics should be dealt with on the indications ordinarily recognized in non-asthmatics.
5. The removal of non-suppurative foci of infection from the nose and accessory sinuses in intrinsic asthma will usually result in marked and fairly permanent improvement, but not cure, in their local manifestations, obstruction, discharge and acute head infections and in improvement or cessation of the asthma which, however, is not permanent, the period of freedom from attacks lasting from one to several months, the average being four to six. Operation should not be offered in such type of case as a cure for asthma.

6. Non-suppurative foci of infection in the nose or accessory sinuses in intrinsic asthma may occasionally be treated surgically in selected cases in an effort to indirectly affect the asthma by improving the general condition of the patient, by lessening the tendency to involvement of the tracheo-bronchial tree, or by removing local conditions which predispose to the so-called "trigger attacks" of acute head infection and consequent asthma.

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CARCINOMA OF THE LARGE BOWEL*

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THE American Society for the Control of Cancer has been making an effort to stimulate statistical study of cases of carcinoma, and it is for this reason the hospital cases of carcinoma of the large bowel were studied in the city of Duluth. This study, which aims to be a critical survey, covers a group of 110 surgical cases of malignancy of the colon and rectum seen at St. Mary's and St. Luke's Hospitals in Duluth during the nine years from January, 1924, to February, 1933. Only surgical cases were included as there can be no doubt as to the true nature of the condition. In all cases either a biopsy or the gross specimen proved the presence of carcinoma. Of the group, 104 cases have been traced and six were not traced. Five of the patients not traced have been considered dead for various reasons.

Sex and Age

There were fifty-three females and fifty-seven males, a ratio of practically 1:1. The average age of fifty-five and six-tenths years was definitely within the cancer period. However, both extremes of age were represented, the youngest patient being twenty-six and the oldest eighty-five years of age. Distribution of cases as to age of the patients by decades of life was as follows: twenty to twenty-nine years, one patient who was twenty-six years old; thirty to thirty-nine years, nine patients; forty to forty-nine years, thirty; fifty to fifty-nine years, twenty-six; sixty to sixty-nine years, twenty-seven; seventy to seventy-nine years, sixteen; eighty to eighty-nine years, one patient who was eighty-five years of age. This distribution of patients throughout the entire span of life emphasizes the necessity for each physician to be "cancer-minded."

Symptoms

In ninety-eight cases it was possible to ascertain the duration of symptoms prior to hospitalization. The longest duration of symptoms was

three years while the average duration was eight months. Six patients entered the hospital with acute intestinal obstruction; they never had had any previous complaints referable to the bowel. On the first admission to the hospital practically all the symptoms pointed in some degree to gastro-intestinal disturbances. The complaints were as listed in the accompanying table.

	Cases
Abdominal pain (various locations).....	65
Constipation (recent).....	63
Loss of weight.....	53
Blood in stool (gross).....	51
Diarrhea (recent).....	32
Gastric distress with vomiting and anorexia.....	39
Pain in rectum.....	24
Weakness.....	18
Abdominal mass (found by patient).....	12
Ribbon stools.....	11

The insidious onset of a functional disturbance of the bowel, which is at all out of the ordinary for the individual and is associated with abdominal pain, blood in the stools or loss of weight, is adequate reason for thorough investigation of the intestinal tract to prove or disprove the presence of malignancy.

Previous Operations

Eleven patients had had operative procedures for supposed conditions other than carcinoma but there is every reason to assume that the malignancy caused the symptoms, because the primary complaints continued after operation and subsequent hospitalization became necessary in due time for further study. This observation is not new but is worthy of reemphasis at the present time.

Hemorrhoidectomy, "treatment of piles," and fistulectomy had been done in a total of six cases, appendectomy in two, cholecystectomy in one case, severance of adhesions for partial intestinal obstruction in one, and right inguinal herniotomy in one. Inadequate study of the case was responsible for failure to make a correct primary diagnosis.

*Read before the St. Luke's Hospital Staff meeting, Duluth, September, 1933.

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Diagnostic and Laboratory Procedure

It was almost astounding to see what help was obtained from minor diagnostic aids. Of the twenty-eight rectal examinations that were done in the cases of this series, twenty-seven yielded a diagnosis of carcinoma of the rectum or rectosigmoid. Proctoscopic examinations were done eighteen times and in each the growth was visualized sufficiently to warrant a positive diagnosis of malignancy. In other words if a lesion is present it will rarely be missed by either rectal or proctoscopic examination.

In thirty-eight cases of lesions situated in the bowel beyond the rectum or rectal bulb, roentgenograms were made and a diagnosis of carcinoma was made in thirty-six cases. Of the two cases incorrectly diagnosed, one, a case of carcinoma of the cecum, was diagnosed abscess and the other, a case of carcinoma of the sigmoid, as merely a sharp angulation of the sigmoid. The natural conclusion is that roentgenography of the colon is an extremely important diagnostic aid.

Blood counts were taken in sixty-two cases and these revealed a sufficient grade of anemia to be significant in fifty-four cases. In all the cases of carcinoma of the cecum, anemia of moderate degree was present.

Preoperative Diagnosis

The preoperative diagnosis was not always correct. Of the entire group the preoperative diagnosis was correct in eighty cases and incorrect, or not definitely given, in thirty (27 per cent). Carcinoma of the large bowel might have been considered in a small number of the undiagnosed cases, but was not stated as the preoperative diagnosis. It may have been implied in such a preoperative diagnosis as intestinal obstruction or in a mere exploration. In the cases of acute intestinal obstruction, however, operation was urgent and no time was permitted for study. In the remaining cases incorrectly diagnosed, inadequate study was definitely responsible. The number of faulty diagnoses have been less frequent in the last few years.

The incorrect diagnoses were as follows: In nine cases of carcinoma of the cecum the diagnosis was appendicitis or abscess in five cases, cholecystitis in one case, cholecystitis and ovarian tumor in one and tumor of the abdomen in two cases; the diagnosis in two cases of car-

cinoma of the hepatic flexure of the colon was cholecystitis with stones in one case and exploration of abdominal tumor in the other; the diagnosis in three cases of carcinoma of the transverse colon was acute appendicitis in one case, tumor of the omentum in one, and ruptured duodenal ulcer in the third; in one case of carcinoma of the splenic flexure of the colon the diagnosis was merely intestinal obstruction; and in fifteen cases of carcinoma of the sigmoid and rectosigmoid, the diagnosis was multiple fibroids in three cases, ovarian tumor in two, diverticulitis in one case, acute perforation in one, carcinoma of the pyloric end of the stomach in one, cholecystitis with probable stones in one, intestinal adhesions with obstruction in one and intestinal obstruction without etiologic specification in five cases.

Situation of Lesions

The lesions were found in every segment of the large intestine, but about three-fourths of them were in the left half of the colon and rectum. They were situated as follows: in the sigmoid in thirty-eight cases (34 per cent); in the rectum in thirty-three (30 per cent); in the cecum in fifteen (13 per cent), an unusually large number; in the rectosigmoid in ten (9 per cent); in the transverse colon in six (5 per cent); in the hepatic flexure of the colon in three (3 per cent); in the splenic flexure in two (2 per cent); in the descending colon in two (2 per cent), and in one case there were multiple lesions with involvement of the cecum, rectum, and sigmoid.

Type of Operation

A composite picture of the operations carried out in the 110 cases studied is shown in Table 1. The group is too small to carry any significance as to relative merits of each operation, and although the operative procedures were made to fit the individual case, it is easily seen that operations on the large bowel carry a high risk. Operations on the right half of the colon were especially hazardous whether primary ileocolostomy or primary resection was done. Most surgeons prefer a two-stage operation for this type of lesion. The entire mortality of 38 per cent was extremely high, but it must be remembered that seven of the deaths occurred in the twelve patients who came into the hospital with acute obstruction which required an immediate operation.

TABLE I. TYPE OF OPERATION WITH MORTALITY

Type of operation	Operations	Deaths in hospital
Exploration	11	2
Colostomy	61	14
Kraski and perineal resection	18	6
Primary resection of cecum	8	6
Mikulicz operation on sigmoid	9	3
Ileocolostomy	3	3
Mikulicz operation on transverse colon	3	0
Resection of sigmoid or rectosigmoid and colostomy	6	3
Secondary resection of sigmoid and rectosigmoid	6	0
Enterostomy or cecostomy	4	0
Resection of transverse colon	2	1
Resection of hepatic flexure	2	1
Mikulicz operation on hepatic flexure	1	1
Mikulicz operation on splenic flexure	1	1
Mikulicz operation on descending colon	1	0
Colectomy	1	1
Total	137	42

In all of these cases, with one exception, conservative operative measures were carried out.

The mortality rate by years is given in Table 2. There is every reason to believe that the helpful preoperative measures, which aim at decompressing the bowel, and peritoneal vaccination, have aided in reducing the mortality in the last few years. In addition, correct preoperative diagnosis is essential to a low postoperative mortality.

TABLE II. YEARLY MORTALITY

	Year									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	Jan. 1933
Patients operated on	7	6	8	12	13	13	16	16	16	3
Number of deaths	3	3	4	7	5	5	6	5	4	0
Per cent	42	50	50	58	38	38	37	31	25	0

Causes of Operative Mortality.—Peritonitis was first of the causes of death after operations on the large intestine; pneumonia and ileus were next in order, and fatal pulmonary embolism was unusually frequent in this series. The operative deaths in this series were due to peritonitis in fourteen cases, bronchopneumonia in nine, ileus in six, fatal pulmonary embolism in four, postoperative shock in two, and in one case each

to the following miscellaneous conditions: ruptured gastric ulcer, abscess of the liver, parotitis, exhaustion, anaphylactic shock after administration of glucose intravenously, cardiac failure, and infection of the wound.

Duration of Life After Operation

Of the group which had successfully undergone palliative operations or resection of the tumor, fifty-seven patients have been traced to January, 1933. Thirty-five patients have died, seventeen of whom had had only palliative operations and eighteen removal of the tumor. The duration of life of the seventeen patients on whom palliative operation only was performed was one to six months after operation in eight cases; six months to one year in five, one year to eighteen months in no cases, eighteen months to two years in three, and two years to twenty-six months in one case. The average length of life after operation for these patients was nine months. The longest life after palliation was that of a patient who had had a colostomy for a carcinoma of the rectum and who lived fairly comfortably for twenty-six months. This case alone signifies the value of palliation and it behooves the surgeon not to close the abdomen as an exploration if some palliative procedure can possibly be carried out.

The average length of life of the eighteen patients who died and on whom resection had been performed was twenty-one months, and the greatest length of life was seventy-six months. Death occurred in one to six months after operation in three cases; in six months to one year in six, in one year to eighteen months in four, in eighteen months to two years in one case, in two to three years in one, in three to four years in one, and in six to seven years in two cases. Of the two patients who lived seventy-two and seventy-six months respectively, one had had a resection of the sigmoid and the other a resection of the rectum. In all the patients in this group, with the exception of one who had had a resection of the rectum and who lived two years after the operation, death was due directly to the malignant condition.

Twenty-two patients who were still living in January, 1933, were traced. Of these, five were in poor health and rapidly failing because of recurrence or extension of the malignancy. Most of these had had palliative operations only.

Seventeen appeared to be in good health, all of whom had had resection of the tumor. Three of the seventeen who were in good health had lived six months to one year after operation, two one year to eighteen months, two eighteen months to two years, two two to three years, three three to four years, one patient had lived four to five years after operation, and three patients five to six years. The greatest length of life was one patient who has lived sixty-six months after operation without any evidence of recurrence.

Summary

One hundred ten cases of malignancy of the colon and rectum have been reviewed. A plea is made that the physician become cancer-minded in all cases, whatever the age of the patient in which symptoms of recent change in bowel habit and abdominal complaints are present. Valuable

diagnostic aids, such as proctoscopic examination and roentgenography of the colon, are available in making a diagnosis of lesions of the rectum or colon. The essential requirements for a lowered mortality rate are accurate preoperative diagnosis and energetic preoperative management. This is exemplified by the lower mortality rate in the last few years.

The average life after a palliative operation is only nine months in this series; after resection, twenty-one months. Two patients lived for between six and seven years following resection. In this series there are three patients who are living now more than five years after operation and who have no symptoms of recurrence.

In this series it was not possible to compare duration of life in the cases in which resection had been performed with the grade of the tumor as is deemed of such important prognostic value by Rankin.

PRACTICAL EXPERIMENTS IN WHAT ACTUALLY CONSTITUTES A GOOD CLINICAL RECORD*

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WORD descriptions of disease conditions exist from early historic times. The doctor has found it necessary to keep a record of his patient as a spur to his memory even though such a record be only a few words in length. His impressions of an interesting, unusual illness are likely to overbalance his remembrance of a dozen less striking cases of a similar type. With the coming of modern scientific medicine, the necessity of recording an increasing number of quantitative facts in the form of laboratory tests and instrumental readings have made adequate notation indispensable. Case records can no longer be considered to be essential only for the purpose of teaching, writing and research, but must also be kept if orderly and systematic study is to be carried out with respect to the routine practice of medicine.

*Read before the Minnesota Academy of Medicine, December 13, 1933. Publication No. 2, Minnesota Hospital Statistical Bureau.

Accuracy of Facts in Medical Records

The patient's record is made up of the sum total of all the facts recorded in it. Even though such facts are noted quite completely, the record will present a true picture only if these facts have been recorded accurately.

In general it can be said that the facts in a medical record range from those which can be established with comparatively certain accuracy, such as sex, weight, height, etc., to those which can be established only within zones of considerable variation, such as family history, symptomatology, et cetera.

The difficulty in obtaining accurate facts is due in part to the lack of adequate definitions. For instance, to obtain a consistent weight value it would be necessary to know if the weight should be taken with the patient nude or clothed, while to obtain a consistent height it would be necessary to know if the height should be taken with

or without shoes. If variations of height and weight were to be studied, other variables such as time of day, position of subject, and accuracy of instruments would have to be recorded. The entire problem of medical nomenclature arises from this need for definition.

The accuracy of any recorded fact in the history may vary not only with the existence or the lack of adequate definition, as dictated by the character of the fact itself, but also with respect to certain other variables: Who asks the fact? How is the question asked? Is the patient responsive? What is his mental or physical condition at the time of the questioning?

There are some facts in the history which a clerk can obtain almost as well as a nurse or doctor. When a clerk is used, however, one must be constantly on guard for a discrimination by the patient against the questions of a lay person. For instance, the doctor occasionally obtains a difference in age, occupation, or financial status of the patient which the clerk can not elicit even after careful questioning. No one, so far as I know, has systematically studied the difference between the answers obtained by a senior medical clerk, an intern, a resident or a staff doctor taken independently on the same patient. A few experiments along this line have been tried by the author with most disturbing discrepancies. They indicate that there are frequently considerable variations in the consistency of the answers given by a patient, which heretofore the physician has never considered as possible variables.

For instance, two staff clinicians attempted by independent efforts and by combined efforts employing both direct and indirect questioning, to elicit the true description of the type of abdominal pain felt by a certain patient suffering from peptic ulcer. After persistent trials over five or six days, the patient's story finally became consistent. Whether the consistent description finally arrived at represented the accurate description, there was no way to verify. It is certainly true, however, that if this patient had been questioned in the routine manner, the accuracy of the first description as given by the patient and placed on the record would never have been verified.

Responsibility for Obtaining Good Facts

The responsibility for obtaining accurate facts must be shared by the administrative, the nurs-

ing and the medical staff. In general, it is wise to place as much burden upon the administrative clerical force involved with the admittance, discharge and record room as possible, and place the burden of all other items, except those which can be done only by the staff, upon nursing. This minimum notation by the hospital clinical staff should involve an entrance statement which checks the findings of the intern, staff progress notes, and a discharge statement of instruction to the patient together with the final diagnosis. It is not possible for nurses, interns, or clerks to take over these functions for the clinical staff except inasmuch as they might write down what is directly dictated. A hospital which can not bring about record consciousness in its clinical staff to the point where it will carry out these minimum requirements, can not expect to obtain worthwhile records either for the purposes of scientific study or for the practice of good clinical medicine.

Principles Involved in Collection, Tabulation and Use of Medical Records

All medical records can be divided into two general types, the clinical record and the medical data sheet. Any other type represents a compromise between the two extremes. The clinical record is defined as a sequential statement of the important facts about a patient's condition and physical findings, while a medical data sheet is defined as a record form adapted for the notation of the patient's history and physical findings suitable for statistical tabulation and analysis. The clinical record must fit the needs of the busy doctor in his relationship with his patient while the medical data sheet must fulfill the qualifications of a scientific record with respect to completeness, accuracy, and ease in notation and tabulation of facts. The primary consideration in good history-taking, from the standpoint of the physician, is to obtain the *essential facts* at the expense of the non-essential. Dr. Raymond Pearl (1921) expresses the dissatisfaction which the statistician feels toward the clinical record:

"From the standpoint of scientific routine record-taking, case histories are most glaringly defective in what they fail to record about the patient. It is by no means impossible to find case histories that fail to record the sex of the patient, while any indication of what kind of person the patient was, in the common sense of the word, whether fat or lean, white or col-

Record Requirements	Clinical Record	Medical Data Sheet
1. Continuity	Continuity in a prime essential. It is largely obtained by rough ordering and the elimination of non-essential information.	Continuity is obtained solely through order and fixation of places for given facts in the record.
2. Order and sequence	Only rough order is necessary in the clinical record except for a few basic facts about the patient which demand fixation of places on the record. Arrangement of sheets in the patient's record helps sequence.	Order arrangement and sequence are essential. They are obtained by fixation of places on the record for given facts and the arrangement of sheets in the patient's record.
3. Conservation of notation time.	It is absolutely essential to conserve the time of the doctor. This end is gained first by shifting all possible record work upon clerks or nurses, and secondly, by omitting the recording of all non-essential medical data.	It is desirable to conserve time but if it is not possible to do so except at the sacrifice of completeness in the notation of facts, conservation of time becomes a matter of cost.
4. Condensation in presentation of facts recorded.	A condensed and itemized form is desirable.	A condensed and itemized form is desirable.
5. Ready yield of information.	While this is desirable for essential information it is not necessary for information which is of minor importance in the patient's condition.	This is essential for all facts on the record, no matter how minor.
6. Accuracy.	Accuracy is desirable but is rarely checked.	Accuracy is desirable but is not frequently checked except for completeness and for apparent errors.
7. Legibility.	Legibility is essential.	Legibility is essential.
8. Expansibility and adaptability.	The ability to expand and adapt a record is very essential to the physician.	The ability to expand and adapt records is desirable but can be obtained only with difficulty since it is impossible to prepare a blank form which can completely satisfy every need for the whole history and physical examination.
9. Completeness of notation.	A reasonably complete summary note of the more important items in the record usually suffices. This can be done by the staff after discharge of the patient.	Completeness of notation is essential in all details which are desired for tabulation. This can be accomplished only by close clerical check before the patient has departed from the doctor's care.

ored, rich or poor, young or old, et cetera, is all too frequently kept a deep secret from any subsequent reader of the history. Again, even in the special medical portions of the history the writer forgets, with almost unbelievable frequency, to make any record of highly important facts.

"The root of such difficulty apparently lies in the method by which case histories are written. The general scheme or outline which a history is to follow resides, far too often, in the head of the history writer, and there only. And heads, especially of human beings, do vary so! The remedy is patent. Any hospital or service that desires to put its clinical records on the most scientific basis will, as a first step, draw up and have printed a series of standard history forms, which will cover not merely general routine facts common to all diseased conditions, but special forms as well, for at least all of the more frequently occurring conditions. These blank forms will contain definitely indicated spaces in which some statement of fact absolutely must be recorded in every single case."

Perhaps a tabulation of the principal similarities and dissimilarities between the clinical record and the medical data sheet will serve to make clear the difficulties involved in attempting to fuse these two types of records.

This tabulation of essential differences and similarities between the purely clinical record and the medical data sheet brings out the fact that the important requirement from the standpoint of the clinician is to obtain continuity in the record, which when taken in conjunction with the necessity for expansibility and adaptability of the record to the multitudinous conditions and findings in the patient, necessitates elimination of the collection of non-essential information in the record.

Quite the reverse is true of the medical statis-

tician or the clinician who desires to study his records for purposes of scientific research. He immediately finds that it is difficult to extract facts from the clinical record and that in a great many instances they have not been recorded completely. The necessity for noting negative information is particularly overlooked. To quote from Dunn (1927):

"Completeness to the clinician signifies notation of every detail pertaining to the positive facts about the case. Completeness to the statistician means positive

and negative information for every single item that is of sufficient consequence to enter into the picture of the disease. It is impossible to apply the laws of probability unless the true probabilities are known.

"If negative and positive information are both known for a series of patients, a 'master tabulation' can be made from the data. For illustration, 843 patients studied by Dr. H. A. Young at the Brady Urological Institute were grouped by me into two classes, the first with moderately enlarged prostates and the second with extremely enlarged prostates. In each instance the history of retention and the type of onset were known.

TABLE A

	No of Cases	Retention	No Retention	Sudden Onset	Gradual Onset
Moderately enlarged	780	(1) 50%	(3) 50%	(5) 7%	(7) 93%
Extremely enlarged	63	(2) 56%	(4) 44%	(6) 15%	(8) 85%
Total	843				

TABLE B

	No. of Cases	Retention		No Retention		Total
		Sudden Onset	Gradual Onset	Sudden	Gradual Onset	
Moderately enlarged	780	(1) 5%	(3) 45%	(5) 2%	(7) 48%	100%
Extremely enlarged	63	(2) 13%	(4) 43%	(6) 2%	(8) 42%	100%
Total	843					

"Tabulation A has taken just as much space as B. However, there are certain questions which can not be answered by A that can be by B. These may be listed as follows:

Table A (Cell No. Noted)	Possible Questions	Table B (Cell No. Noted)
1	Percentage of	
2	Retention, moderately enlarged.....	1 and 3
3	Retention, extremely enlarged.....	2 and 4
4	No retention, moderately enlarged.....	5 and 7
5	No retention, extremely enlarged.....	6 and 8
6	Sudden onset, moderately enlarged.....	1 and 5
7	Sudden onset, extremely enlarged.....	2 and 6
8	Gradual onset, moderately enlarged.....	3 and 7
	Gradual onset, extremely enlarged.....	4 and 8
	Retention and sudden onset, moderately enlarged.....	1
	Retention and sudden onset, extremely enlarged.....	2
	Retention and gradual onset, moderately enlarged.....	3
	Retention and gradual onset, extremely enlarged.....	4
	No retention and sudden onset, moderately enlarged.....	5
	No retention and sudden onset, extremely enlarged.....	6
	No retention and gradual onset, moderately enlarged.....	7
	No retention and gradual onset, extremely enlarged.....	8

"Eight additional questions are evident in master Table B which have not been and can not be answered in Table A. It is obviously impossible to form Table B unless all information, both negative and positive, is known on each one of the 843 individuals."

Certain sheets in the patient's record are essentially data sheets, others are clinical records, and still others are a fusion of the two types of records. Almost every type of institution has some sort of a sheet for registration and discharge data which can be considered to be a data sheet as it has been defined above. Admission and discharge information, together with provisional and final diagnosis and condition on discharge are usually assembled on one sheet. This is a logical combination, since these facts are the sum total of what is desired for indexing by most hospitals, and since it facilitates indexing by bringing together in one place all elements to be indexed. Other records used as data sheets are the clinical, laboratory, temperature, and special study forms. The sheets, which are usually in the form of the clinical record, are the general history and physical examination, progress notes, nurses' notes, and x-ray reports. The group of records which are midway between the clinical record and data sheet are those used by special departments, such as pathological reports, surgical and anesthesia records, etc.

There is no reason why any purely clinical record can not be made into a data sheet when it is desirable to study certain kinds of disease conditions. For instance, a great deal of effort has been expended by the Association for the Prevention and Relief of Heart Disease (1922) in establishing and attempting to popularize an elaborate data sheet for cardiac conditions. Even

though this association was backed by considerable medical opinion, it did not completely succeed in obtaining the adoption of its record. Certain data sheets backed by the American College of Surgeons and the American Medical Association, in particular their forms for recording fractures and for periodic health examination, have enjoyed a moderate success.

Dunn and Rockwood (1928) *Archives of Internal Medicine* made an effort to throw the more important facts in the general history and physical examination into a data sheet. In spite of the ease of notation of negative facts their record obtained no popularity, due to the feeling that much of the negative information gathered was non-essential. A study of 584 of these records which were taken on patients at the Maryland University Hospital from November, 1927, to September, 1928, showed conclusive evidence of considerable improvement in the determination of the actual facts obtained. In the evaluation of their record, as shown in the accompanying table, a history and physical examination record was called good if it was complete in every detail or very nearly every detail of the printed form, fair if it was complete except for errors in not more than two or three sections of the record, and poor if it contained many mistakes and omissions resulting in an accumulation of data of about the same order of completeness as that obtained in the average clerical record.

November, 1927-September, 1928							
	Good		Fair		Poor		Total
	No.	%	No.	%	No.	%	
Taken in Department of Medicine	81	29	98	35	99	36	278
Taken by other departments	17	6	112	36	177	58	306
Total	98	17	210	36	276	47	584
For November-December, 1927							
	Good		Fair		Poor		Total
	No.	%	No.	%	No.	%	
Taken in Department of Medicine	42	68	16	26	4	6	62
Taken by other departments	9	20	28	64	7	16	44
Total	51	48	44	42	11	10	106

During the experiment there was supervision over the records by one of the staff in the Department of Medicine for the time period of November and December, 1927, while in the other departments there was no supervision at any time. It is interesting to observe that completeness of notation in a form record of this type could be obtained only two-thirds of the time even with close supervision of an interested staff member.

As a consequence of this experiment, the conclusion was reached that it is futile to attempt to better the clinical record by introducing a record form unless the staff members are willing to supervise the record taking in order to obtain data suitable for tabulation and research. It is an open question whether students should be trained by letting them fill out forms as a substitute for a clinical history. It is certainly true that the art of where to expand a history and how to question the patient in order to get at essential facts about the patient's history, and the ability of the questioner to expand and frame his questions so that they produce correct and fruitful answers, will not be obtained by the use of blanks. At the same time, it is probable that a certain amount of fixed order obtained by printed forms would result in somewhat better records and in developing an orderly, systematic approach by the student.

It is to be hoped that some compromise between the data sheet and clinical record can eventually be adopted rather widely throughout the country, at least with respect to the routine history and physical examination. If this were possible, corresponding records in the various special departments could be developed which would dovetail with the general history and physical examination sheet. It is not to be expected that data sheets will ever replace the clinical record forms, although there will be more and more modifications of clinical records to meet partially the requirements of the data sheet. Let there be no illusion, however, that the clinical record can ever be used satisfactorily for the extraction of information for study. This process is expensive and invariably results in information totally inadequate for statistical study. In a sys-

tem involving nothing but clinical records, a physician who wishes to study epilepsy, for instance, should construct a data sheet, collect records upon his epileptic patients, and fill out an approximately equivalent number of data sheets on non-epileptics for the sake of control. He should carry on such a study until he has sufficient data for the statistical analysis which he desires to conduct.

It would be highly desirable for any physician to have at his command a considerable variety of data sheets—at least one for each specialty of medicine, so that when he happened on an unusual or rare case he could systematically go through and fill out all such data sheets and present to the current medical literature case reports which would be truly complete and capable of statistical treatment. If a sufficient number of such reports were published to make it possible to study the rare disease from the quantitative standpoint, definite progress would be made in medical knowledge.

Physical Form of the Patient's Record and Cross-Indexing

The physical form of the patient's record, together with its filing and indexing, is important, but can not be considered in detail in this paper.

Most institutions have adopted the unit system of filing and those hospitals which bind their records in volumes are steadily becoming less in number. Most hospitals are adopting a single registration number for the patient, no matter how many readmittances he may have had to the hospital or to the Out-Patient Department. An identity number for the individual and a distinguishing sub-number for the particular admission should be an essential part of every hospital record system.

Adequate cross indexing methods which will make available the content of the patient's record to the physician do not exist. The solution of this problem will probably result only when modern tabulating machinery has been adapted to cross indexing methods. Experiments along these lines are being conducted in several places throughout the country at the present time.

OBSTETRICAL ANALGESIA*

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TO preserve life and to alleviate suffering have ever been the idealistic objectives of the medical profession, and seldom do the paths that point to these objectives diverge. Due fundamentally to a universal shifting of moral values, but more immediately to pressure of laity opinion fostered by roseate promises of the profession, these paths do part where they touch the field of obstetrical analgesia.

Twilight sleep was given to the world, and by the world accepted, as a specific against the agony of child-bearing. The medical profession soon realized its shortcomings and its danger, but the public refused to yield the hostage promise. In no wise does this mean that the profession and the laity were in fundamental conflict, for the doctor has always sought to ease the pain of labor; but in an overzealous eagerness to redeem an overzealous promise, known and relatively efficacious methods of analgesia have been deserted for uncertain though presumably absolutely efficacious methods, and safety and life itself have often been sacrificed.

Ether had proved itself an excellent analgesic and anesthetic in the latter part of the second stage of labor and for the actual delivery. Chloroform extended the analgesia over a longer period of the second stage than did ether, and served quite as efficiently for the actual delivery.

Twilight sleep, aimed at the complete annihilation of all pain of the entire labor or the major portion of it, resulted in restless and often maniacal behavior of the patient, in the prolongation of labor, and in a greater incidence of operative deliveries. These factors, plus the direct depressing effect of the drug on the baby, resulted in a considerably increased rate in fetal mortality.

These facts becoming apparent to the medical profession, and the further fact that analgesia had been produced through the major portion of labor, led to laboratory and delivery room experiments with innumerable drugs.

The long list of drugs employed and the diver-

sity of opinion on the part of men of probity relative to the efficacy of all of the methods condemn any one analgesic as a panacea for the pains of labor. The modern literature lists ether, chloroform, morphine, nitrous oxide, ethylene, morphine and hyoscine, hyoscine alone, rectal ether-oil-quinine, sodium amytal, nembutal, nembutal and paraldehyde, pernocton, barbiturates and ether-oil per rectum, numal, avertin, spinal anesthesia, infiltration anesthesia, sacral anesthesia, paravertebral injection; and when we hear the conflicting reports on all of them, we truly feel that we have "heard great argument about it and about, but evermore come out by the same door wherein we went."

But fifty thousand obstetricians can't be wrong, and out of the hectic debate certain facts will not down. Negatively these may be chronicled thus—

Ether retards and stops the progress of labor.

Chloroform does the same to a lesser degree and is dangerous when long employed, or in toxic conditions of any degree.

Morphine slows or stops labor and is very dangerous to the child.

Morphine and hyoscine do the same, and also very often produce a restless or maniacal patient.

The literature emphasizes again the danger of narcotization of the child if morphine be given within three or four hours previous to birth. This holds, of course, for cesarean section as well as for delivery per vaginam. Through error in diagnosis, or through ignorance, morphine is often given the mother a few minutes before she delivers; often these babies show no hesitation in establishing respiration, and this fact alone has made many a man foolhardy about the use of morphine in labor. He forgets that these babies did not have time to assimilate a dosage large enough to narcotize them. Royston states, "Should a baby be born in less than thirty minutes or more than four hours following the injection of morphine, there is usually no effect on the baby."

Hyoscine alone, given early, may retard or

*Read before the Northern Minnesota Medical Association, Willmar, Minn., September 9, 1933.

stop labor, and often makes it necessary to restrain a restless patient.

Rectal ether-oil-quinine is often difficult to give. It may retard and even stop labor. It produces a restless patient, with, often, ineffectual expulsive efforts. The morphine which is recommended preliminary to the rectal instillation may retard labor or, in event of error in diagnosis and early delivery, may narcotize the baby; and, besides this, the attendant will be unable, for some time following the instillation, to do rectal examinations to note the progress of labor.

The barbiturates may retard or even stop labor. Intravenously they cause a definite drop in blood pressure. They produce a restless patient, often requiring restraint; they weaken the expulsive efforts of the second stage, thus necessitating an increase in operative interference; and they often produce a marked drowsiness in the baby.

Avertin is relatively toxic, its analgesic effect of short duration, and it must not be employed in patients with kidney or liver complications.

Spinal anesthesia has its own morbidity and mortality. It is difficult of application, short in analgesic duration, and so cannot generally be employed in the first and often not till late in the second stage. It retards labor and produces a fall in blood pressure.

Paravertebral injection is too untried to be recommended.

In keeping with the well-known disagreement among medical men, the virtues claimed by various writers for any one method of analgesia are categorically denied by others.

On the other hand, summarizing positively the results of these arguments, it may be said that, in general, *none of these methods and drugs has failed to give analgesia of varying degree and success, and that nitrous oxide heads the list as the most ideal analgesic and anesthetic in obstetrics.*

None can be said to be ideal. As Royston says, "All anesthetics add something to the danger to either mother or child." The ideal is high and, as yet, impossible of attainment. Roques, writing in the *Lancet*, defines it this way: "Under existing conditions it is necessary that the method of alleviating pain shall, most importantly, neither alter the normal mechanism of labor nor in any way increase the risk to the mother or child; it must minimize pain throughout labor as far as possible under existing conditions, and it must

not be unduly costly to the patient." Or, as another writer puts it, the drug must abolish all pain or memory of pain, there must be a wide margin of safety in dosage, no harmful effects on mother or child, and the progress of labor must not be delayed.

With one more quotation we may be able to bring out some fundamental factors not generally emphasized by the men reporting their successes and failures with various types of analgesic, hypnotic, or sedative drugs. Royston, with a judgment that is damning in its fairness to the patient, states, "The man who is unable or unwilling to give full time to his patient during labor should not attempt the use of pituitary preparations, nor anesthetics, nor analgesics, unless the patient is properly supervised during the entire time of their administration."

The literature on obstetrical analgesia may be divided into two groups: (1) enthusiastic advocacy of a single method or drug; (2) studiously conservative observations concerning the use of a drug or combination of drugs based invariably on studies of selected cases.

Selection of cases depends on a consideration of the mechanism of labor, the physical and temperamental resources of the patient, and the action, danger, and efficacy of analgesic drugs. Applying this knowledge with faithful adherence to Royston's dictum, just quoted, should enable the physician to avoid serious failures and to achieve a worthy degree of successful analgesia in a majority of cases.

The uterus, with its triple layer of muscle fibers crossing at various angles, is not only an organ built stubbornly to retain its contents but is also an organ of powerful expulsion. Labor is a conflict between the lower forces of retention and the upper force of expulsion. These forces are in partial conflict throughout pregnancy, but in the majority of cases the retention forces hold out till term, at the expense of muscle tissue, this being replaced to a large extent by connective and elastic tissue. At term, and sometimes earlier, the final battle is fought, the expulsive force working with a maximum of patience and a minimum of machine efficiency against the lower retention forces.

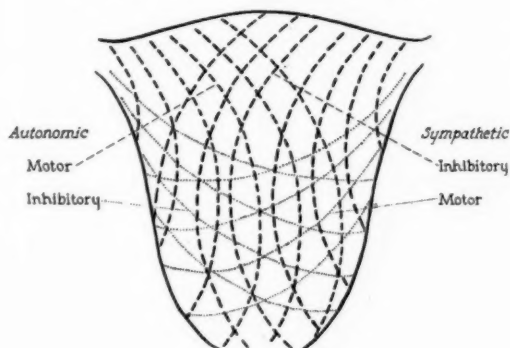
Added to this long drawn out tug-of-war we have the factor of failure of telegraphic communication of the nerve with the innervating centers, of conflict between these centers them-

selves, of disagreement between individual layers of muscles and groups of muscle-fibers in the contractile portion of the uterus; also the mysterious element of irritability and uncertainty of action of the uterus outraged by an occiput posterior position, and finally the triumphant tenacity of a cervix which has managed somehow to retain more than its share of muscle and thickness. In considering these factors one comes to realize that all labors cannot be, and are not, alike.

Complicated in design and uncertain in action as is the uterine musculature, its innervation or motivating power is even more complicated and uncertain. The anatomy and various functions of the motivating power are equally poorly understood by the best of neurologists and clinical observers alike.

Generally, it has been believed and taught that the sympathetic system is the motor drive to the uterine musculature. Why, then, does adrenalin, which is directly stimulating to the sympathetic system, relax a contracting uterus? Whitehouse and Featherstone, painstaking English researchers and clinicians as well, chart their findings relative to uterine innervation as follows:

CHART I. UTERINE INNERVATION



It consists of three systems: (1) local; (2) sympathetic; and (3) autonomic (parasympathetic). The local system is capable of producing rhythmic uterine contractions, and is independent of the other two systems, as in other involuntary muscle. The sympathetic stimuli are motivating to the circular muscle fibers and inhibitory to the longitudinal (expulsive) bundles. The autonomic stimuli are motivating to the longitudinal fibers, and inhibitory to the circular group. Both are controlled by higher centers in the medulla and

possibly the cortex, but are capable of acting independently of these.

In the face of our present knowledge of the complicated mechanism of the uterine musculature, and in the face of our abysmal ignorance relative to its innervation, we must inevitably come to the sober realization that it is not with impunity that we alter and interfere with these forces by drugs whose actions are, at best, uncertain. For, after all, our main objective as obstetricians is to present a living and healthy mother with a living and healthy child.

Our choice of an analgesic in any given case should be based on the type of labor presented. This necessitates not only a study of each patient, but also a study of each labor as early in its course as possible. In this connection we make two grave mistakes: (1) We speak of pains and contractions interchangeably, which results in confusion; (2) we base our treatment of labor too often on the subjective symptoms revealed by questioning the patient. The contraction produces pain, but these two do not present a constant relationship, hence the pain is not sufficient evidence of the efficacy of the contraction. Only by palpation can the length and intensity of the contraction be determined.

The pain comes on after the contraction has started, and lasts after the contraction apparently has disappeared. However, the pain comes to its peak much more quickly than the contraction, and is generally complained of for a considerable time after the contraction of the uterus has ceased.

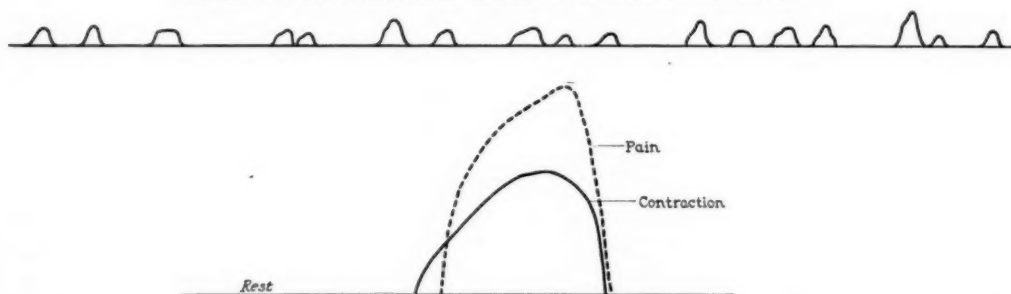
While weak uterine contractions are common throughout pregnancy, they are generally not painful. Those occurring in "false labor" are painful and are very frequently mistaken, by both patient and doctor, for true labor. They are marked by total irregularity; that is, the length, the intensity, and the interval are all most irregular, there is no progression, and pain is minimal.

Due to faulty nerve stimulation or to incoordination of the uterine musculature we may have a long period of agonizing pains with relatively poor and utterly ineffectual contractions; that is, the three layers of uterine muscle fibers are not coordinated in action, and small isolated groups of fibers are contracting independently. The uterus being originally a bilateral organ, this phenomenon is often beautifully exemplified in unilateral activity of the uterine musculature in

this type of labor. This is often referred to as primary inertia. Here there is irregularity of incidence rate, of intensity and length of contraction, and the pain is out of all proportion to the degree of contraction present.

gressively, nitrous oxide or ethylene are as ideal analgesics as can be employed at the present. Rectal ether-oil-quinine, with or without the preliminary morphine and magnesium sulphate, will produce a very satisfactory analgesia in a

CHART II. INCOORDINATED LABOR—CONTRACTION AND PAIN

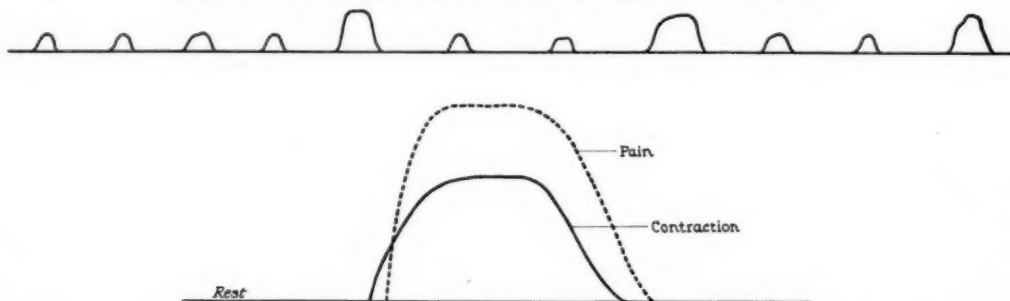


An occiput posterior position very often manifests itself to the close observer by the type of contractions present. These are characterized by quite regular incidence, very irregular intensity and length of contraction, and pain out of proportion to the degree of the contraction.

True labor progresses regularly. Duration and

large proportion of cases. So will sodium amytal given orally, providing the dose is large enough. Nine grains are generally necessary and often twelve may be required. Rectal anesthesia which has not retarded labor, and which fails to give sufficient relief, may be successfully augmented by moderate dosage of sodium amytal,

CHART III. OCCIPUT POSTERIOR LABOR—CONTRACTION AND PAIN



intensity of contractions increase and the interval is progressively shortened.

More than 96 per cent of our patients fall into the class of uncomplicated vertex presentations. A close study of early labor will reveal either a normally progressing type of labor, the irregular type of muscular incoordination, or the excessively painful type which so often accompanies an occiput posterior position.

Assuming a fair acquaintanceship with a few better known non-toxic analgesics, and having observed the type of labor present, the application is often not difficult. In true labor where the contractions have gathered momentum pro-

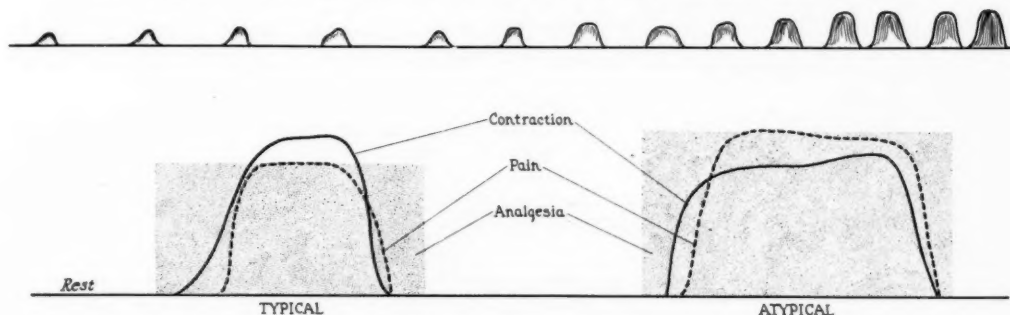
grains six to nine, orally. This combination of medication has proved quite successful. Nitrous oxide, ether, or chloroform is generally necessary for the actual delivery.

In the incoordinated type of labor the patient should be put to rest as soon as the type is surely diagnosed. By rest is meant rest from labor, that is, a complete relaxation of the entire uterine musculature. If uterine rest is decided on before the patient is fatigued, a hypodermic injection of one cubic centimeter of a one to one thousand solution of adrenalin may be sufficient. The uterus will frequently relax perfectly and the patient may rest for several hours. When labor

is resumed, it will very often be of the true progressive type, and lend itself, without further interruption, to the analgesics mentioned above. If the patient with incoördinate labor becomes very tired, however, and we wish her to recu-

Let us not forget that, in any case where the full power of uterine contractions must be conserved and utilized to the utmost, unhampered by the slightest retarding influence of an analgesic, postpartum rest and amnesia will often

CHART IV. TRUE LABOR—CONTRACTION AND PAIN AND RELATION TO ANALGESIA



perate as well, we may use a hypodermic injection of morphine sulphate (grain $\frac{1}{4}$) and atropin (grain 1.150) with thirty to forty grains of chloral hydrate in one to two ounces of water per rectum. Morphine with magnesium sulphate given hypodermically and ether oil per rectum also relax the muscles of the uterus and often lead into normal labor rate while the patient is still asleep. In the more stubborn cases, ether inhalation may have to be used to supplement these other procedures.

Where occiput posterior positions are accompanied by the irregularity of contraction intensity, stimulation with enemata or quinine should be attempted rather early, and if this does not lead into a regular progressive type of labor the patient should be put to sleep to conserve her own strength and that of her uterine musculature. On awakening she may go into normal labor. The method of securing rest may be any of those mentioned for incoördinate labor. In the occiput posterior positions we generally face a long-drawn-out labor and have to jockey, as it were, back and forth from complete rest to moderate stimulation, never forgetting that the best guarantee of a successful culmination of this irritating type of labor rests on conservation of the patient's energy throughout. Where nourishment by mouth seems inadequate, glucose by vein is not only a welcome substitute but also a splendid conservator and stimulant of uterine function.

more than counterbalance, in the patient's mind, the pain she has endured in an unmodified labor. In this connection sodium amytal is a most welcome adjunct. Six to nine grains of this drug given orally in the latter part of the second stage will not inhibit labor, but will allow the patient to sleep soundly for twelve to thirty-six hours after she has delivered, and permit her to awaken refreshed and often with but a very vague memory of her labor.

If this discussion seems too limited, remember that it is aimed at the uncomplicated vertex presentations which constitute more than 96 per cent of cases met routinely.

Very few authoritative reports in the literature are based on the use of the one-drug method. Most of them deal with the drug best suited to the stage of labor and to meet the individual situation and recommend employing several types of analgesia in the same labor, including ether, chloroform, or gas for the actual delivery.

Summary

Each labor is a clinical entity, and in order to produce safe obstetrical analgesia one must know the patient, study her labor, be familiar with more than one type of analgesic, administer and watch it himself or provide capable supervision, and finally, in the present status of analgesic drug therapy, one must not be dissatisfied with a relatively efficient analgesia and an absolutely healthy mother and child.

CASE REPORT

CYANOTIC CONGENITAL HEART DISEASE AND FULL TERM PREGNANCY

M. J. SHAPIRO, M.D.

and

JALMER H. SIMONS, M.D.

Minneapolis

THE prognosis in congenital heart disease is usually considered very grave. This is especially true in those patients who have shown cyanosis from birth. Occasionally, however, patients with marked congenital defects of the heart live to sixty or seventy years of age. In following a considerable number of patients with various types of congenital heart disease over many years the presence of cyanosis itself has not seemed to be significant from the standpoint of prognosis. The clinical signs of cyanosis with the accompanying clubbing of the fingers and toes are so outstanding that the examiner is led to make an unfavorable prognosis on these signs alone. These patients who have had cyanosis from birth apparently adjust themselves to the lack of oxygenation of blood and except for dyspnea get along fully as well as those with congenital cardiac lesions without cyanosis. In a general way it may be stated that those patients with congenital heart disease who live beyond the age of puberty have a fair prognosis as to life regardless of the presence of cyanosis. A considerable percentage of children born with congenital heart disease die, of course, in the first few years of life, either because of the extensiveness of the lesion or because of an infection at the site of the congenital defect in the heart. The following case is one of an interesting congenital cardiac lesion, with cyanosis complicated by pregnancy and illustrates that in such cases the prognosis is not altogether poor.

Case Report

The patient, who was just under thirty years of age, was referred to one of us (Shapiro) for an opinion as to the advisability of permitting a pregnancy to continue. She was at that time about four months pregnant and very anxious to have her baby. The patient stated that she had known about her heart condition since she was six years of age. Before that time she had not been conscious of cyanosis or clubbing of her fingers but her mother had told her that she had always been more or less blue about the lips and eyes. She had been born at full term. No other member of the family had any congenital defects. She had become conscious of cyanosis and increasing clubbing of the fingers from the time she entered school. She had always been dyspneic but never to the extent that she was limited in any activities. She was able to keep up with the average child in athletics and as she grew older she played tennis and attended dances without difficulty. She graduated from high school and Normal school and taught school for a number of years before her marriage. The patient complained that all her life she had not been permitted to partake of ordinary activities which she felt perfectly able to do.

Doctors had always given a very gloomy prognosis and had ordered strict limitation in her activities. She had had pneumonia eight years ago and although she had been very ill finally recovered completely. On two or three occasions in the past she had had fainting spells and at present complained of some dizziness. Four years ago she had aborted spontaneously at four months.

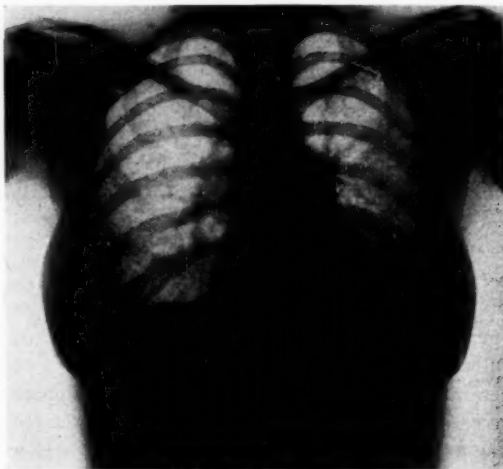


Fig. 1.

Physical examination revealed a well developed, well nourished young woman, somewhat dyspneic, very alert and of unusually high mental ability. There was a high grade of cyanosis of all the mucous membranes, the face and conjunctivae. The eyes were suffused and the vessels injected. Clubbing of the fingers and toes was extreme. The pupils reacted well. The eye-grounds revealed the typical engorgement of the veins usually found with high grade cyanosis. The head and neck were otherwise negative. The breasts were those of a pregnant woman. Examination of the lungs was negative.

No thrill was made out over the precordium. The heart was moderately enlarged to the right and left. A marked enlargement in the region of the conus pulmonus could be made out by percussion. The heart sounds were regular and of good quality, while in the third and fourth interspaces just to the left of the sternum a harsh prolonged systolic murmur could be heard. The murmur was transmitted across the base of the heart but was not well heard through to the back and could not be heard in the vessels of the neck. The second pulmonic sound was well heard; it was snappy and accentuated. On fluoroscopy the heart was globular in shape, probably slightly enlarged, the conus pulmonus was greatly enlarged and pulsated very forcibly. Blood pressure was: systolic 110, diastolic 70. A six foot x-ray film of the heart (Fig. 1) revealed the measurements as follows: T. T. 23 cm.; M. R. 4 cm.; M. L. 8.5 cm.; T. H. 12.5 cm. The electrocardiogram (Fig. 2) revealed a fairly marked right preponderance, but was otherwise within normal limits.

The abdomen with the exception of the enlarged pregnant uterus was negative. The extremities were

normal, no edema being noted. Examination of the urine was negative. The blood revealed a hemoglobin of 105 per cent with 6,800,000 red blood cells per cm.

A diagnosis of congenital heart disease, probably Tetrad of Fallot, was made and was based on a history of cyanosis, probably from birth, and the characteristic clinical, roentgenological and electrocardiographic findings in this type of lesion. The Tetrad of

The patient went into labor October 27, 1933, at which time laparotrachelotomy was done under spinal anesthesia of 150 milligrams of novocaine. Carbon dioxide and oxygen were given throughout the operation. The blood pressure at the beginning of the operation was systolic 116, diastolic 70 and the lowest during the operation was systolic 90, diastolic 60. The duration of the operation was thirty-five minutes. A

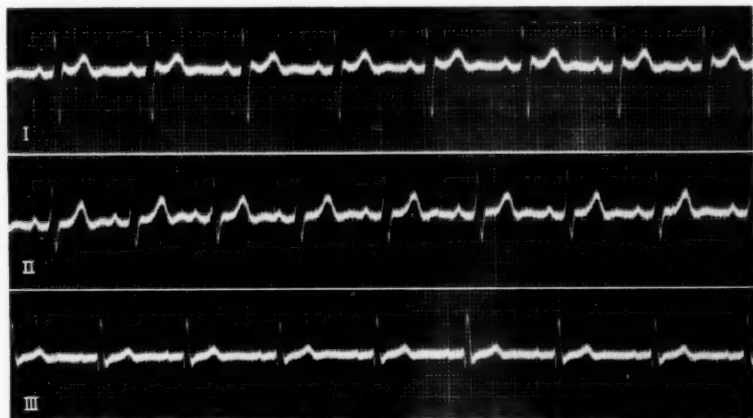


Fig. 2.

Fallot consists of congenital pulmonary stenosis, patency of the interventricular septum, enlargement of the right ventricle and an aorta riding over the opening in the interventricular septum and receiving blood from both ventricles.

It was concluded from the complete examination that the patient could with a fair degree of safety continue through a full term pregnancy. This opinion was based especially on the past history, the patient having been able to do almost a normal amount of physical work without unusual cardiac embarrassment, the fact that although the conus pulmonus was enlarged to a quite marked degree yet the heart itself was only slightly enlarged and also because there was no marked evidence of cardiac decompensation at four months pregnancy. We were well aware of the possible development of a subacute bacterial endocarditis superimposed on the congenital cardiac lesion, especially during the post-partum period, but because of the patient's good general condition and also because of her extreme desire of going through with the pregnancy, we advised that the pregnancy be not disturbed. It was agreed by both of us that the heart would sustain the least amount of strain if the delivery were accomplished by cesarean section. The patient was able to go through an unusually hot summer with no more than average difficulty and was not seen again by me until a few days before delivery. At that time the findings were essentially unchanged. The heart had, of course, been pushed up by the full term pregnant uterus, but there was no evidence of any cardiac embarrassment.

The patient was first seen by one of us (Simons) April 15, 1933. The last period had been February 1, 1933, and the date of expected confinement was November 8, 1933.

The initial pelvic examination revealed a pregnancy of about two and one-half months with a retroversion of second degree, which corrected itself spontaneously. Pelvic measurements were interspinal 26, intercrural 29, intertrochanteric 21, external conjugate 19.5, diagonal conjugate 10 plus, transverse outlet 9.5, and posterior sagittal 8.

The course of the pregnancy was normal in every respect except for slight dyspnea in the last six weeks. The fetal position was O. D. P.

baby girl in the O. D. P. position was delivered alive and weighed five pounds and ten and one-half ounces. The infant showed no fetal anomalies or deformities. The post-operative course was uneventful. The patient showed a temperature of 100.6° on one day. There was no postoperative nausea or vomiting. The wound healed by first intention.

On re-examination after delivery no change was noted in the heart, the patient had made an uneventful recovery and was able to leave the hospital on the fourteenth day after delivery.

Subsequent postpartum examination was negative. The uterine wound could be palpated vaginally and seemed to be uniformly healed.

The patient has since reported that she and her baby are very well and that she had apparently not suffered any ill effect from her pregnancy.

Discussion

Congenital heart disease even though accompanied by a high grade of cyanosis is not in itself an absolute contra-indication to pregnancy. Those patients with congenital defects of the heart who are fortunate enough to live to maturity are a select group, and must be considered in this light when the question of pregnancy presents itself. Unfortunately, in spite of the tremendous amount of research on the subject of cardiac function, no practical tests have as yet been developed to determine the cardiac reserve in a given case. In determining whether or not a patient with congenital heart disease should be permitted to go through pregnancy the most important factor is not the grade of cyanosis present. The size of the heart, the past history of evidences of cardiac decompensation, and the patient's ability to carry on the ordinary activities of life are far more important. With accurate cardiac diagnosis and modern obstetrical technic and careful cardiac supervision a rare patient with cyanotic congenital cardiac disease can safely go through normal pregnancy.

EDITORIAL

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BUSINESS MANAGER

J. R. BRUCE, Saint Paul

Volume XVII OCTOBER, 1934 Number 10

Increase in Functional Disturbances

There is evidence that the economic debacle which began five years ago has brought more patients suffering from functional disturbances to the attention of physicians. Brooding over past losses, uncertainty over the future and the present struggle to keep one's head above water are sufficient to disturb one's equilibrium. Financial difficulties, as though not enough in themselves, seem too often to be followed by domestic and other difficulties.

The average individual is not a natural philosopher. While the ephemeral nature of wordly possessions has been emphasized during the past few years, it is questionable whether this has served to minimize their importance to the average American. The reaction of the individual is too often a resort to overuse of caffeine, nicotine, or alcohol, and a resulting loss of sleep. Functional disturbances may manifest themselves by an elevation of blood pressure and pulse rate, tremors or disorders of digestion. The individ-

ual knows he is not right and worry over his physical condition is added to the picture.

This type of patient offers a real opportunity to the physician for rendering a high type of medical service. A careful history and office examination generally reveals the trouble without necessary recourse to expensive procedures which only add to the cause for worry. Reassurance as to the absence of organic disease and advice as to the excessive use of stimulants with the prescribing of a mild sedative to assure rest is often all that is needed, and is of more practical value than an attempt to develop a philosophical attitude in the patient towards his troubles.

There is no question but that the average American has been living at too high a tension and that recent events have not relieved the tension. Although physicians as a group may not be good examples of how to live, this does not mean that they cannot give good advice.

Report on Nursing Schools

The nursing profession has been in desperate straits during the past lean years. Even previous to the depression there was evidence of a marked oversupply of trained nurses. The Committee on Grading of Nursing Schools of the American Nurses Association, after studying the problem for eight years, recently presented its report.

This report shows that the census in 1930 tabulated 288,737 women and 5,450 men nurses, or one woman trained nurse for every 424 of population. Since the year 1900, nurses had increased 2,374 per cent compared to a 62 per cent increase in population. No one knows how many practical nurses there are.

The reason for this phenomenal increase in the number of trained nurses seems to have been the result, largely, of the idea that a hospital with a nurses' training school is better than one without. This probably was true in the early years of this century when there was a dearth of trained nurses, and hospitals had to utilize untrained women for nursing. As the report

brings out, hospital nursing performed by graduate nurses obviously is of higher grade than that performed by student nurses. The present method of utilizing student nurses in large measure in supplying the needs of a hospital is the only instance of the kind in any profession. The same procedure would not be tolerated in the educational or medical field. The contention of the report is that this procedure is all wrong and should be terminated.

The recommendation of the Committee is that most of the training schools for nurses be closed. More than 50 per cent of the schools are at present maintained in connection with hospitals with not more than seventy-five patients. The International Council of Nurses has maintained that nursing schools should be limited to hospitals having a minimum of 100 patients.

The Committee recognizes the difficulties which will be encountered in attempting to have its recommendations carried out. These, however, may not be insurmountable. There has already been some indication that the employment of graduate nurses in hospitals to supplant student nurses need not add to operating expense. Graduate nurses are more efficient than students. Maids may be employed at small wages to do much that student nurses now are required to do.

In order to assure a better trained personnel in the future, to do justice to present graduates by providing hospital employment, and to limit the inroads of practical nurses into the field, the Committee feels that legislation may be required, not only for the licensing of training schools, but for the licensing of practical nurses.

The problem of the nursing profession is a large one. After all, the nursing profession has largely handled its problems unaided in the past and doubtless will be able to solve its present serious predicament.

VITAMIN C THERAPY

In the majority of cases, guinea-pigs maintained on a diet deficient in vitamin C will develop ulcerative lesions of the intestine, if fed daily doses of tuberculous sputum. If this deficiency diet is supplemented by an adequate amount of tomato juice (vitamin C), however, the animals almost invariably remain free from intestinal tuberculosis. Since the guinea-pig and man are apparently identical in their vitamin C requirements, McConkey and Smith of the New York State Hospital for Incipient Pulmonary Tuberculosis conclude that tomato juice therapy has a verifiable rationale in certain forms of clinical tuberculosis. (*Jour. A. M. A.*, November 25, 1933, p. 1731.)

Of General Interest

On September 11 the Scott-Carver County Medical Society met at Montgomery, Minnesota. Dr. W. A. Fansler spoke on the "Treatment of Hemorrhoids" and Dr. M. O. Henry spoke on the "Complications of Elbow Fractures."

On invitation of the New York Academy of Medicine, Dr. Charles N. Spratt will demonstrate his operations for glaucoma and cataract by means of motion pictures. He will read a paper on "The Closure of the Cataract Incision" at the Boston meeting of the College of Surgeons and a paper on "The Early Diagnosis of Glaucoma" at the Pennsylvania State Medical Society at Wilkes-Barre. Dr. Spratt left for the East Friday, September 28, and will be gone for about three weeks.

Dr. Frederick C. Warnshuis, for twenty-one years secretary of the Michigan State Medical Society and for the same period serving first as editor and business manager and later as business manager of the *Journal* of that society, has resigned to accept the position of Secretary-Treasurer and Director of Public Relations of the California State Medical Association. Dr. Warnshuis is nationally known to members of the profession as Speaker of the House of Delegates of the American Medical Association, a position he has held for fifteen years. The California profession is to be congratulated on obtaining a man of Dr. Warnshuis' experience and forcefulness to help direct their association activities.

ANTI-HORMONES

Thirteen years ago, active glandular extracts were few and most endocrine therapy was "polyglandular." Today, however, there are many pure or nearly pure extracts the effects of which are fairly well known and more or less controllable. It was thought that these preparations must surely at last provide effective means for the treatment of disease; and they have been extensively (even incautiously) employed for this purpose. Potent endocrine preparations are often administered to patients and frequently the desired effects may be attained; but, curiously, an individual here and there, who should promptly be cured by this extract or that, not only fails to improve but occasionally even becomes worse. The dose is increased without effect; the preparation is then condemned or the patient given up as hopelessly refractory. Now comes an answer to those who have been reckless enough to believe in the endocrine millennium. The organism does not so readily accept assaults on its glandular equilibrium, for, as Collip and his associates have just shown, there are "anti-hormones." Repeatedly, warnings against the indiscriminate application to therapeutics of our still fragmentary knowledge of glandular physiology have been issued by those who have provided the foundation for the present exceedingly active work in this subject. Only a year ago the Council on Pharmacy and Chemistry pointed out the possible danger of the unconsidered administration of such active agents in the field of gynecology. Recent investigations provide emphatic substantiation of this point of view. (*Jour. A. M. A.*, August 18, 1934, p. 492.)

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association

B. J. Branton, M. D.

W. F. Braasch, M. D., Chairman

J. C. Michael, M. D.

The Council Meets

"For the past year I have been 'on the spot' in the matter of administration of medical relief.

"Now, from the moment when your new Emergency and Advisory Contact Committees begin to function, it is you who are 'on the spot' instead."

So Mr. Benjamin E. Youngdahl, Director of the Social Service Division of the State Emergency Relief Administration, presented the changing relief situation to members of the Council in session in Saint Paul, Sunday, September 9. Medical relief is under Mr. Youngdahl's jurisdiction.

The meeting was called to discuss details of the organization of medical Emergency Advisory and Contact Committees of Three in every county in the state: to discuss details of medical allowances to be paid for this relief service: to discuss the entire problem informally with Mr. Youngdahl, himself, who generously devoted three hours of his time to the Council.

Of interest to the membership at large will be two agreements as to nomenclature and interpretations reached by the Council and Mr. Youngdahl.

Allowances: Not Fees

One: Funds paid to physicians under the terms of the Federal Bulletin No. 7 and the state bulletin "Medical Care in the Home" will not be called "fees."

Amounts agreed upon for the various services allowed under the regulations are not fees in any strict sense of the word since they do not represent adequate payment for the work done. They are simply allowances to assist the physician to pay the expenses involved in care for relief clients of the government which will be called, officially, medical allowances.

What Is A Hospital?

Two: The question, what is a hospital and what shall constitute hospital treatment, was set-

tled as follows for purposes of payment of allowances:

A hospital is an institution where beds are provided for keeping patients over night. Thus physicians who maintain several beds for the comfort of patients who are being treated in their offices are not to be construed as maintaining hospitals, and allowances will be paid for treatment given under such circumstances.

Following are some of the remarks made by Mr. Youngdahl to the Council, which are of great interest as representing an official résumé of the relief situation today:

Physicians Complimented

Physicians are to be complimented, for the most part, on the manner in which they have cooperated with the State Emergency Relief Administration in the operation of emergency medical relief.

In evaluating an experiment, as in a game, the hits are likely to be forgotten, the misses over-emphasized.

No Two Counties Alike

The relief situation differs in each county. All but one have organized for federal relief to supplement local funds:

Many northern counties cannot contribute a nickel to the care of their indigent.

Most of the southern counties are able to pay part of the bill, using federal funds to supplement.

Ramsey and St. Louis counties are paying for medical relief from local funds and the Emergency Relief regulations do not apply there. Minneapolis is doing the same thing though rural Hennepin County, is organized for federal medical relief, and is receiving federal funds for medical relief.

This is the present Relief Organization as schematically represented:

STATE SET-UP

GOVERNOR FLOYD B. OLSON, Administrator
L. C. ZIMMERMAN, Assistant Administrator

Social Service
Division for
"Human Relief"

Works
Relief

Finance

Rural
Rehabitation

Transient
Division

COUNTY SET-UP

County Relief Administrator

County relief worker

Engineer

Rural Rehabilitation
Manager

Accounting and
Disbursing
Officer

One of the above four county relief employees serves, also, as County Relief Administrator.

Cash Relief

More and more of the relief given is in cash. That is, clients are paid for their work in cash instead of in relief orders.

In a few counties medical relief has been on a cash basis also, with the occasional result that the client did not use the cash for medical service when that was designated.

A ruling is to be made soon which will make it necessary to issue orders for all medical service.

Procedure Soon To Be Effective

1. Doctor must sign an agreement stating that he is willing to care for patients under the terms of the federal and state regulations.
2. Ordinary cases will then be assigned by the Relief Worker to the doctor chosen by the relief client.
3. If a relief client has no choice of physician the Relief Worker will be instructed to ask him if he owes any physician a bill and to send the patient to that physician. Otherwise he will send the patient to the most convenient physician, having regard, also, to equitable distribution of the work.
4. The doctor will make an estimate of the service needed on a standard form which the Relief Office will then authorize in writing.
5. The doctor will perform the service and send his bill in accordance with allowances agreed upon by the Relief Office.
6. An order will then be written by the Relief Office for doctor and relief patient to sign.
7. Bill is then paid by the central office.

Emergency Cases

1. Upon receipt of a call, the doctor usually goes out and gives the necessary care, regardless of whether he knows the patient.
2. If the patient is a relief client the doctor should then make out a standard form and get authorization in writing from the Relief Office within twenty-four hours in the time of the call.

In these cases the doctor assumes a risk, of course. The service may or may not be authorized, depending upon the status of the client.

Eligibility To Relief

There is a difference between medical need and relief need.

It is the responsibility of the Relief Office to determine whether or not a given person should be on the relief rolls, no matter what his medical need.

People who have barely enough for food and shelter and nothing left over for medical care are eligible for medical relief.

People who have not exhausted their credit resources are not eligible for any relief.

Doctors living near county lines are eligible to attend patients in other counties and their bills, in that case, must go through the county Relief Office where the patient resides.

We feel, however, that the doctor should not travel too far in making country calls. As far as possible, he should take mileage costs into account.

No hard and fast rule should be set up that might damage the doctor-patient relationship.

Hospital Care

Federal funds cannot be spent for hospital care. In some counties, however, the Relief

Worker is authorized to pay for hospitalization out of local county funds.

One-Half Million On Relief

About 75,000 families are now on what is termed "human relief" in Minnesota. This number is in addition to those who are receiving relief for their animals.

Assuming an average of four persons to each family, it may be estimated roughly that one-half million people in Minnesota are getting some sort of federal relief today. And the number is increasing constantly.

Last month the number of families on human relief was only 73,000. At the end of September it will probably be 76,000.

By next March the number may reach 125,000, depending upon the expansion of private business and of the Public Works program.

Medical Economic Functions

Advisory and Contact Committees should be chosen to represent all of the licensed practitioners in the county.

I shall be glad to allow them, as an experiment, to assist in adjudicating bills for medical allowances wherever there is a dispute between the doctor and the Relief Office. The final authority as to dispute bills rests with the State Relief Office.

The committees will act as boards of appeal, and as advisory committees to cooperate with the relief administration.

In order to function as appeal boards these committees must all of them be duly elected, even those already appointed and functioning.

A few doctors have been guilty of solicitation of relief patients. This is a problem which should be handled by the Medical Association and Contact Committees. It is definitely against the spirit of the Medical Agreement.

Compensation For Relief Workers

By a recent regulation of the State Emergency Relief Administration, all relief clients and State Emergency Relief Administration employees working on any of the projects initiated and approved within the Emergency Relief Administration are now entitled to compensation and relief if they are injured on the job.

With this regulation a new Division of Safety

and Compensation has been set up in the State Emergency Relief Administration and a new fund, called the "Accident Compensation Fund" has been established.

Medical interest in the new division is self-evident.

Physicians and surgeons will be paid "REASONABLE" fees from this fund for care of injured workmen subject to approval by the Division of Safety and Compensation. The term and the capitals appear in the regulations as issued.

Hospital charges will be paid in accordance with a schedule of fees already adopted and published by the division.

Traumatic Injuries Only

Only traumatic injuries received in the course of work will be compensated under these regulations. Disabilities arising out of conditions or circumstances surrounding the place and nature of employment such as temperature, excessive heat, moisture, cold, humidity, et cetera, will not be compensated. Hernias, back strain and heart failure cases must be considered non-compensable, also, unless established by full and satisfactory evidence. It must be established, also, that the injury was not incurred willfully, as a result of intoxication on the part of the worker or as a result of gross negligence.

A sum of money equivalent to 1.5 per cent of the total SERA funds for labor on Emergency Relief Administration payrolls for the preceding month will be set aside to form the Accident Compensation Fund, also the same percentage of total salaries of the Emergency Relief Administrative personnel paid during the preceding month.

Regulations for payment of physicians from this fund are as follows: (Regulations Governing Compensation and Relief for State Emergency Relief Administration Workers and Employees, State of Minnesota.)

May Call Doctor Of His Choice

"Whenever a Minnesota Emergency Relief Administration employee, employed on a project within this state, is injured while in the performance of duty, he shall have the right to call or consult a duly licensed physician or surgeon of his, or her, choice for medical treatment. The expenses of this initial treatment and first aid shall be chargeable to the Accident Compensation

tion Funds, notwithstanding that the claimant worker may later be disallowed compensation or further medical expense on his claim; provided, however, that in all such cases the physician making such examination shall promptly submit to the Division of Safety and Compensation a true, full and complete report of the physical condition of the claimant worker in such manner as may be required by the said Director. Providing, further, that in no case shall medical expenses or disbursements become allowable for treatment of a purely mental condition or derangement on the part of the employee.

"The Accident Compensation Fund shall not be liable for or chargeable with further medical expenses in addition to original treatment and examination, unless and until the Director authorizes and awards compensation to said claimant; any further medical treatment attention rendered between initial treatment and authorization by the Director will be rendered by such physician or surgeon entirely at his peril and upon the responsibility of the worker."

Reviewing Relief

At the end of June, 1934, twenty-nine states were organized to give medical care to relief patients under FERA Bulletin No. 7 regulations.

Four states were unable to organize under the new plan for legal or financial reasons such as absence of state appropriations.

Six states had preferred not to organize at all.

Nine states had made some steps toward organization but had been unable to come to an agreement with the professional societies.

The above statements are from a comprehensive study of the medical relief situation made by Miriam Simons Leuck for the American Public Welfare Association and published in a pamphlet that should make interesting reading for every member of a medical association.

The six states who have preferred not to organize for this relief include four New England states, Connecticut, Maine, Massachusetts, and Vermont, where the local system of medical care for the indigent is practically uniform and appears to be satisfactory. Nevada felt that its county physicians could take care of its sparse population and was not inclined to change. Oklahoma was of the same mind but is now thought to be getting ready for organization. Iowa is clinging to the system developed between county medical societies and county authorities popularly called the "Iowa plan" and shows no sign as yet of changing.

Nine Reported Conflicts

The nine states said to be delayed by administrative-medical professional conflicts are listed as Alabama, Arizona, Arkansas, Indiana, Louisiana, Maryland, Nebraska, Oregon and Virginia.

"In most of these states," according to the welfare association study, "previously existing services were at a low level and efforts were early made to secure the benefits of a new set-up. In all of them, however, agreement between the administration and the organized medical profession has been difficult to obtain."

"The chief points of difficulty have been: one, the underlying theory of the plan; two, the level of the fee scale; three, provision of machinery to enforce the plan and allow for its alteration as new problems arise. Scattered local groups of medical and dental men in almost every part of the country have refused to coöperate with the relief administration on this theoretical basis. One group of physicians in Alabama urged the organization of a clinic with hired physicians to care for relief patients."

"Only one state medical society, that of Virginia, has expressed itself on the matter officially. In dentistry, the state dental societies of Florida, Connecticut, Nebraska and Rhode Island have adopted a similar policy."

Virginia Resolution

Following is the Virginia resolution dated October, 1933.

RESOLVED that the Public Relations Committee of the Medical Society of Virginia disapproves of the plan proposed by the State and Federal Emergency Relief organization for the compensation of physicians on a fee schedule basis for the care of the indigent sick, and be it also

RESOLVED, that we recommend to the various county medical societies that they coöperate with the local relief agencies in working out suitable plans for the medical and surgical care of these cases without charge for services rendered.

"In actuality, in most states where the majority of members of the medical profession adopted this attitude, the program was probably not greatly affected thereby as there were also states in which relief funds were so limited that little paid medical care would have been available in any case."

Transportation Charges Varied

A total of thirty-two fee schedules, some of which are now in force and some of which, while

not accepted by both parties, are being used as a basis for negotiations, were available for inspection.

The most striking feature evident in the comparison of these scales is that there is a relatively small range between minimum and maximum fees for house calls, whereas there is a wide range between charges allowed for transportation. Also, between minimum and maximum fees for the less standardized services such as surgery, fractures and instrumental and other abnormal deliveries.

Very little data were available from any of the states as to costs of the service or the number of patients benefited.

Administrator after administrator answered, "I know we should have statistics of this sort but we haven't been able to get them."

In one year's experience with the new program, the following problems and difficulties have shown themselves to be fundamental, according to the welfare association study. They are:

Problems

1. Financial: essential poverty in certain areas, unwillingness in many areas to devote funds for this purpose and lack of information in most areas regarding costs, combined with fear of a great increase in costs over care as previously furnished.
2. Facilities and trained personnel: insufficiency of facilities in certain localities, inability to use existing facilities to best advantage due to scattered or unbalanced distribution of the population and difficulty of securing qualified personnel and nonpolitical administration.
3. Need for medical advice and coordination from the Federal Emergency Relief Administration.
4. Development of effective local supervision of medical work and control of costs.
5. Collection of data and utilization of agencies for determining costs and scope of service.
6. Provision of hospitalization.
7. Utilization and adjustment of relations with clinics, et cetera.
8. Adjustment of relations with the medical profession.
9. Better correlation with public health services.
10. Provision for care for chronic illnesses.
11. Provision for special services.

The fact that very few states or cities have sufficient hospitals or funds to provide hospital care for those who need it but are unable to pay was obvious from replies to the questionnaire.

Gap Unfilled

The federal regulation against expenditure of federal funds for hospitalization, based upon the

supposition that existing facilities are adequate, has therefore been the source of much difficulty and many complaints.

It is obvious, says the report, that as long as this gap in the fundamental care of illness is left unfilled, proper care will not be provided.

The conclusion is, however, that, in spite of the mass of detailed criticism of the act and its functioning, the large majority of those who are concerned with its operation have found many concrete benefits secured through its operation. They regard these benefits as consisting chiefly in the substantial extension of service provided, the educational effects of the program in practice and the experience gained through its flexibility and experimentation.

Minnesota Committees Will Help

It should be noted that Minnesota is among the twenty-nine states now operating with reasonable success under federal regulations for medical relief.

The organization of Medical Emergency Advisory and Relief Committees in each county to advise and assist the local relief worker will go a long way toward solving these problems.

Medical Field Representative

George B. Larson of Saint Paul is field representative of the Minnesota State Medical Association for Emergency Medical Relief.

He was appointed to this newly created position by the House of Delegates at Duluth and he went to work under the direction of the Council and the Secretary, September 4, 1934.



GEORGE B. LARSON

Mr. Larson's job is specifically to assist in the smooth, equitable and efficient operation of emergency medical relief in Minnesota.

His qualifications for the work are unusual and warrant confidence in him and

reliance upon him by all members of constituent medical societies in the state.

He came to Saint Paul from Frederic, Wisconsin, where, for six years, he has been business manager for a medical group and executive secretary for the Polk County Medical Society.

As business manager of the clinic he has had ample experience with the fixing and collection of fees in a rural community.

As medical society secretary he has reinforced that experience with a working familiarity with all of the problems of medical organization in a rural country. This county, incidentally, is similar in most aspects to the countryside of Minnesota.

As Polk county secretary, Mr. Larson introduced a number of organization activities generally attempted only by large city societies and with conspicuous success.

A large part of his work during the last few years has been concerned, inevitably, with arrangements for care of the indigent in his county. Largely as a result of his efforts, the Iowa plan for contract care of the indigent was successfully organized in Polk County before the institution of federal relief on a large scale. Subsequently Mr. Larson organized his county under the Wisconsin plan for emergency medical relief and participated in its smooth and successful operation.

The Minnesota plan for Advisory and Contact Committees of three physicians from each county, whose sole function will be to work with local relief workers in the administration of local medical relief, has much in common with the Wisconsin plan. Mr. Larson's experience with this type of organization will undoubtedly prove of value in his work in Minnesota.

Malpractice Suits In Minnesota

Recently members of the Council sent out questionnaires on malpractice to all members in their districts.

Following is a tabulation of replies from the first three districts to return their questionnaires.

District Two: Dr. L. L. Sogge, Windom, councilor.

Nine members had malpractice suits brought against them in the last ten years: fifty-nine had not.

Four suits were settled in court.

Four were settled out of court.

Nine have been threatened with a suit which was abandoned.

Forty-eight carry malpractice insurance; twenty do not.

District Three: Dr. H. M. Workman, Tracy, councilor.

Fourteen members have had malpractice suits brought against them in the last ten years; seventy-nine have not.

One had a suit brought against him which is not yet settled.

Seven had suits brought that were settled out of court.

Five had suits brought that were settled in court.

Two had suits brought that were dropped.

One had a suit that was settled in the doctor's favor.

Fifteen have been threatened with a suit that was abandoned; seventy-five have not.

Sixty-seven carry malpractice insurance; twenty-three do not.

District Six: Dr. J. M. Hayes, Minneapolis, councilor.

Fifty-three have had malpractice suits brought against them; 265 have not.

Two have a suit started which is not yet settled.

Twenty-three had a suit settled out of court.

Two had a suit settled in the defendant's favor.

Seventeen had suits that were settled in court.

Five had suits that were dropped.

Two had suits that were thrown out of court.

Preventive Measures

Following are all the suggestions looking toward prevention of malpractice suits for all three districts. They are nearly the same for each.

1. X-ray all injuries.
2. Follow up all cases started.
3. Advise lockjaw serum in all injuries, even a scratch.
4. Don't attempt too much—call a consultation if it seems in the least advisable.
5. Follow standard treatment.
6. Inform the patient of all possibilities.
7. Carry a good protection policy.
8. More ethical practice among doctors.
9. Stop criticizing other doctors.
10. Less jealousy among doctors.
11. Every M.D. should belong to his medical society.
12. Unity in the medical profession.
13. Closer social relations with honorable attorneys.
14. Educate the doctor to do better work by post-graduate course in the different societies.
15. Do your best in every case and be careful.
16. Doctors talk too much.
17. More care.

18. No distinction between competent and incompetent physicians.
19. Publish names of physicians who testify against fellow physicians.
20. Expel doctors who testify against other doctors.

Serious Problem

When all replies are returned and tabulated the Council will make a joint study of the situation in coöperation with Dr. B. J. Branton, who is making a supplementary survey for the Medical Economics Committee.

The problem of malpractice litigation is a serious one and demands the best thought of organized medicine to meet it effectively.

If malpractice suits increase, it is only a question of a short time, according to underwriters, until no more malpractice insurance will be written. In the meantime premiums are mounting to a point where they are beyond the ability of many medical men to pay them.

Reply to your malpractice questionnaires.

Public Health Education

In its 1933-1934 report to the House of Delegates the Committee on Public Health Education made several important recommendations.

One urged the organization in every county and district medical society of an actively functioning Public Education or Public Relations Committee.

How many counties have such a committee?

What specifically can such a committee do?

The local public health committee is vitally needed in every community, state committee says, to represent medical opinion in every community public health program and to give it proper assistance; to assume proper leadership everywhere in health education among children and adults; to keep a watchful eye upon unsanitary conditions and disease prevention in every community.

Interesting The Family Doctor

Another important recommendation asserts that we need to enlist an active interest in our public health program on the part of the family doctor; to show him how to avail himself of services and materials provided by state committees; to encourage and keep in proper hands a state-wide program of preventive medicine and public health.

The further development of the Speakers' Bureau and Speakers' Library is also urged so that an active and well informed corps of med-

ical speakers shall be available at small expense to address lay groups in all parts of the state.

Health Talks

Incidentally the committee reports the impressive total of 867 health talks arranged through state headquarters for the last year. These talks were given before federated clubs, parent teachers' associations, public health nurses, Kiwanis Clubs, commercial club meetings, and schools.

Obviously, says the committee, there is a real demand for medical speakers and it is very important to the success of our work that more physicians who are willing and able to give lay talks be enlisted.

The committee also recommended that the Orthopedic Clinics carried on throughout the state under the joint auspices of the Orthopedic Club, the State Department of Rehabilitation and Re-education and the Christmas Seal organization have medical society interest and co-operation.

It is the experience of the clinicians, provided through the Orthopedic Club, that few children brought to these clinics have been without adequate advice and treatment from their own physicians. They need, chiefly, the assistance of state agencies to help fit them for schools and jobs.

Seen By The Secretary

Being the Log of the Month of a Busy Medical Executive

August 13: Mankato. At the meeting of the Southern Minnesota Medical Society. The society is to be congratulated on its program. Four shows were going on at once, all interesting and most of them round-table discussions, built on the same plan as the Duluth meeting.

Unquestionably, the small group meeting is the most effective and popular foundation for post-graduate education whether in the form of society meetings or post-graduate courses.

August 14-23: North to Bemidji, Baudette, Roseau, Fergus Falls, Crookston, Thief River Falls . . . a 1,400 mile trip.

Doctors are feeling good in this part of the country. Crops are good enough and the tourist crop is excellent.

Made many calls to help along the organization of our Emergency Advisory and Contact Committees. Great interest was expressed by everybody, but no lists of committees came in.

Here is an interesting sidelight on mileage costs and Federal Emergency Medical Relief allowances in these northern counties; especially

in view of the fact that the Relief Administration has felt that mileage allowances are too high.

Some of the men have not even made expenses on long trips to take care of Federal Relief clients. That was when they were obliged to engage transportation such as snow-mobiles to get over bad roads in bad weather.

With Munns

August 27: Spent the day with a young lawyer, Clarence Munns (not the former Minnesota football player), from Kansas. Munns has been engaged as executive secretary by the Kansas State Medical Association.

He came to Saint Paul as the final stop on a long tour to study medical society organizations. Detroit, Cleveland, Indianapolis, Milwaukee, Madison, were other ports of call.

August 29-September 4: North again. Conferred with President-elect Coventry of Duluth on appointment of 1935 committees. This job of committee appointments becomes more important and more exacting each year. Nowadays, committee chairmen and even committee members are not figure heads. They work!

Minneapolis Meeting

September 4: Lunched with Dr. Henry B. Ward of Washington, D. C., and the Deans of the University of Minnesota to discuss the possibility of holding our next state meeting in Minneapolis during the week of June 24 when the American Association for the Advancement of Science meets at the University. Dr. Ward is permanent secretary of the Association.

There are many advantages to be considered in this arrangement.

We shall have the benefit of several world famous speakers to be brought to Minneapolis by the other organization. They can be engaged to speak at our sessions.

We shall also be able to extend the privileges of registration mutually so that all who attend will be welcome at both meetings.

Dr. Ward himself is interested in the plan. His organization will make a special point of medical science at this session in the interest of the joint arrangement. It is probable that he will take advantage of the opportunity of securing some of Minnesota's famous medical men as speakers for his sections.

Hotel accommodations are ample in Minneapolis for a large attendance at both meetings.

Incidentally, the Minneapolis meeting may set a new precedent in our state meeting programs. It may be the first of a series of great Twin City biennial meetings to be staged, the Council has decided, on a larger scale than ever attempted before.

The next one would then be in Saint Paul in 1937. Intervening meetings would be held at other medical centers in the state.

Larson And His Work

September 4: George Larson reported for work to state headquarters this morning. He will spend a week getting acquainted with our office routine in Saint Paul, making up his schedule, and getting acquainted with the State Relief Administration officials.

Next week he will begin his task of helping along the efficient operation of medical relief in Minnesota.

The first job, naturally, will be the organization of Emergency Advisory and Contact committees in each county.

Mr. Larson is well equipped by his Polk County, Wisconsin, experience for this work. He was selected after due consideration by the Council and the House of Delegates. Members may trust him.

September 5: 4-H Club examinations at 11 West Summit. These examinations have been conducted annually for four years by three co-operating organizations: the 4-H Clubs, the Minnesota Public Health Association, and the Minnesota State Medical Association. They take a whole day of everybody's time at state headquarters. Twelve medical specialists, a dentist, three nurses and twenty-five clerks examined the 114 contestants, rated them and picked the winners between 9 a. m. and 5 p. m. Busy day!

Same Mistakes

September 7: Lunched with Benjamin E. Youngdahl, Director of the Social Service Division of the State Relief Administration, and George Larson, our field representative for relief.

Talked over problems in medical relief operation which should be taken up with the council at its Sunday, September 9, meeting.

We were forced to acknowledge, as the result of this conversation, that medical men make some of the same mistakes as other organizations who deal with the State.

Some of these mistakes have raised serious problems up at the Capitol. They come to light and make difficulties especially when individuals with political influence undertake to interview the "higher-ups."

It is apparent that the State Relief Administration wishes to refer as many of the local problems as possible back to the counties for local solution.

That is one reason why the administration so warmly encourages organization of our Medical Emergency Advisory and Contact Committees.

September 9: All day with the Council. This meeting was long and crowded and left many problems still to be settled. A résumé of Mr. Youngdahl's talk in the afternoon is printed elsewhere in this section. A meeting of the Emergency Executive Committee will be necessary soon to complete action on many matters connected with the medical relief. The secretary is not the only officer of your society who is working hard these days on the relief problem.

The Council took enough time from consideration of relief problems to approve plans for the Minneapolis meeting. It will be held June 24 to 27 at the time of the American Association for the Advancement of Science meeting.

New Award

September 10: North again to Brainerd for the fine two-day program of the Northern Minnesota Medical Association.

This association appointed a committee to study and take action on an award to be presented by the society for some part of the state meeting program each year.

It would be fine if some other society would do the same thing before arrangements have been completed for our next annual meeting. The precedent is already well established.

It began with the gold medal awarded each year for the best scientific exhibit presented by an individual medical researcher by the Southern Minnesota Medical Society.

The Minnesota Radiological Society followed last year with the establishment of the Russell D. Carman Memorial Lectureship, which will provide a radiological lecturer annually for the state meeting. Dr. Alexander B. Moore, of Georgetown University, Washington, D. C., gave the first lecture last year.

In addition, it has been customary for some

time for the host society in the city where the meeting is held to provide one speaker.

If each large county society and even a few interested individuals would endow further lectureships our state meeting would rapidly assume the importance of the Inter-State meeting in this section of the country. It is already the outstanding state meeting of the Northwest.

The success and scope of our state meetings is witnessed by the enthusiasm of our commercial exhibitors. Already, several have contracted for space in Minneapolis. Many have written congratulatory letters. One or two even sent in their money for next year's space within a month after the July meeting in Duluth. Such interest is unprecedented among exhibitors who must ordinarily be wooed patiently for many long months before a meeting.

Detoured on my way home to call on Dr. Herman Johnson at Dawson; Dr. H. M. Workman at Tracy—organization is well underway in his district; Dr. L. L. Sogge of Windom, Dr. Holbrook at Mankato, and Dr. Strathern at St. Peter.

Discussed the relief situation, and especially the allowance schedules, with all of them except Dr. Holbrook, who was not in.

New Problem

September 14: Gave a six-minute radio talk on our 4-H Club examinations on the Farm and Home program over WLB at 1:15 p. m.

September 17: Lunch with Mr. Youngdahl. Mr. Youngdahl will meet with the Council again next Sunday, September 22. He is very anxious to settle the amounts of medical allowances for Emergency Medical Relief, so that they will meet the approval of the doctors and also fit into his "human relief" budget satisfactorily. One simple allowance schedule for the entire state is what he needs and all of us hope that Sunday's meeting will see all of these matters settled.

Reported opinions I heard on my Brainerd trip, and found Mr. Youngdahl very ready to compromise on several items in deference to these opinions.

Afternoon: Conferred twice with Mr. A. V. Rohweder, Director of the Safety and Compensation Division of the State Emergency Relief Administration. This is a new division and a new service.

It means that employes on relief projects un-

der the sponsorship of the State Emergency Relief Administration and other coöperating units will be compensated for traumatic injuries received in the course of their work.

Hospital bills will be paid in private hospitals in accordance with a schedule already worked out and issued by Mr. Rohweder's division. Doctors' bills will be paid also, if they are deemed reasonable by the division. Here is a new and important phase of the relief problem.

Evening: Went to Cambridge with Dr. George Earl of Saint Paul, Councilor of the Fifth District, to attend a meeting of the East Central Minnesota Medical Society. It was a committee organization meeting.

Seven county meetings were arranged on the spot for the purpose of electing Emergency Advisory and Contact Committees in each of the counties involved.

September 18: Two more county election meetings arranged by telephone this morning. Thus, nine counties in Councilor District Five should be ready shortly for the new relief program. We're getting action!

Noon: Conference with Mr. W. C. Walsh of the Minneapolis Civic and Commerce Association about 1935 meeting in Minneapolis.

Mr. Walsh, is very much interested in our meeting, very courteous, but he hesitates at the expense. It will cost considerable to stage our meeting at the Minneapolis Auditorium.

There is plenty of space at the Auditorium. It will house all of our group meetings and exhibits nicely.

If we can agree upon terms, the Minneapolis meeting bids fair to be the biggest ever staged by the state society in Minnesota.

If not—well, we can always go back to the smaller meetings.

Evening: Off to Chicago to attend the Secretary's Conference of the American Medical Association. Back for the Council meeting Sunday.

Minnesota State Board Of Medical Examiners

Minneapolis Man Pleads Guilty To Posing As A Physician

State of Minnesota vs. James A. Enright

James A. Enright, twenty-four years of age, residing at 1514 Tenth Avenue South, Minneapolis, entered a plea of guilty on August 30, 1934, before the Honorable E. F. Waite, Judge of the District Court, to a charge of practicing healing without a Basic Science Certificate. The specific charge against Enright was that he was holding himself out to the public as being engaged in the practice of medicine and surgery. Judge Waite, after hearing the facts, imposed a sentence of thirty days in the Minneapolis Workhouse and the defendant was placed on probation for a period of one year.

For several weeks the State Board of Medical Examiners has been checking the activities of this defendant. Enright first represented himself as being a doctor and having graduated from the University of California. On investigation this was found to be untrue. Enright has no medical education whatsoever, but at the time of the May truck drivers' strike in Minneapolis he volunteered his services in treating and caring for injured and sick truck drivers. For this he was paid the sum of \$50.00. When the strike was again called in July Enright acted in the same capacity and was paid approximately the sum of \$100.00. He was placed under arrest by the military authorities on August 1, and placed in the stockade at the State Fair Grounds. He was released on August 4, and upon the completion of the investigation by the Medical Board on August 23, a warrant was issued for his arrest. Enright was warned by Judge Waite to refrain from practicing healing in the future unless he had the necessary qualifications.

The State Board of Medical Examiners wishes to express its appreciation for the splendid coöperation shown in the handling of this case by Mr. Ed. J. Goff, County Attorney of Hennepin County, and Mrs. L. A. Selover, Assistant County Attorney.

President's Letter

Some Phases Of Our Responsibility

Doctors can no longer carry on private practice untouched by the threat of public interference. So many organizations exist, national and state-wide in their scope, which are concerned with the preservation or control of public health, that many medical men rightly feel it is their duty to help formulate the policies of these organizations. The committee on the cost of medical care, financed by the Foundations, presented the opinions largely of a group of laymen, on what they considered to be the best method of bringing medical care to the public.

I think it is the opinion of most medical men in Minnesota that this program, if carried out, would revolutionize and disrupt the practice of medicine.

With the best intentions in the world, laymen can hardly interpret the ethics and ideals of the profession or uphold the high standards attained by generations of self-sacrificing physicians. We believe that matters pertaining to public health should always be defined and regulated by medical advice. It is of the utmost importance, therefore, to the public as well as to the profession, that medical men should have a voice in determining policies for all boards which are concerned with the health and well-being of the public, such as charity clinics, welfare boards, school boards, public health associations, and clubs with philanthropic activities. The Woman's Auxiliary has a like responsibility and should have a voice in determining policies of women's clubs that have an interest in public health matters.

Nor should our interest in public affairs stop at this point. It is not enough that Minnesota stands as a leader among the states for her achievements in medical legislation. That stand must be maintained in every legislative year. Those interested in adverse legislation are like a prize fighter looking for an opening. To better illustrate this thought, I quote below extracts from a circular letter recently sent out by the

chairman of the Legislative Committee of the Illinois State Medical Society:

"Physicians are in a peculiarly strategic position to exercise an important and usually a determining influence in the character and trend of legislation, particularly on matters relating to medicine. As a political force, the organized medical profession does not claim great power and could not very well be otherwise. As individuals the physicians can and should be powerful factors in those political matters which influence the practice of medicine from the standpoint of patient, public, and doctor.

"We are on the eve of an election.

"In order to exercise his right of franchise intelligently and to perform his duty to himself and community every physician in Illinois should make it a point to meet and get acquainted with every candidate for the state and national legislatures. He should communicate to these candidates his opinions concerning medical matters that are apt to be up for legislative consideration. A ten minute chat with a candidate prior to election and under favorable circumstances is worth more in moulding his attitude on legislative matters than a dozen delegations of lobbyists after the General Assembly convenes.

"Physicians are intimately acquainted with many people. This gives to them a particularly advantageous approach to political leaders. By using this advantage the physician can obtain a sympathetic hearing that will have a powerful influence over the crystallization of thought in the minds of legislators.

"Your Legislative Committee wishes to urge upon you the duty and responsibility that is yours in respect to political matters. That you make contact with candidates and express your opinions on medical problems is of the greatest importance.

"Moulding legislative thought by contact with candidates is an opportunity, a privilege, and a duty of every physician. In this way he can do important constructive service in building the governmental structure on a sane, firm foundation. Criticizing politicians and bewailing government activity after new laws have been enacted is the poorest way known to correct undesirable trends, much less to prevent evil legislation."



President, Minnesota State
Medical Association.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

Medical Broadcast for the Month

The Minnesota State Medical Association Morning Health Program

The Minnesota State Medical Association broadcasts weekly at 11:00 o'clock every Wednesday morning over Station WCCO, Minneapolis and Saint Paul (810 kilocycles or 370.2 meters).

Speaker: William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine, Medical School, University of Minnesota.

The program for the month of October will be as follows:

- October 3—Heart Tonics.
- October 10—Pneumothorax Treatment.
- October 17—Acute Appendicitis.
- October 24—Beriberi.
- October 31—The Biopsy in Cancer Diagnosis.

Inter State Post Graduate Assembly

The first International Assembly of the Inter State Post Graduate Medical Association of North America to be held east of the Alleghenies is to take place in the public auditorium of Philadelphia, Pennsylvania, November 5, 6, 7, 8 and 9, 1934, with pre-Assembly clinics on November 3, and post-Assembly clinics on November 10 in the Philadelphia hospitals.

The public auditorium is located in the University area and across the street from the Philadelphia General Hospital, thus assuring the Assembly close access to an abundance of clinical material.

The aim of the program committee, with Dr. George W. Crile as chairman, is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical science. The program has been carefully arranged to meet the demands of the general practitioner, as well as the specialist. Extreme care has been given in the selection of the contributors and the subjects of their contributions.

The Philadelphia County Medical Society will be host to the Assembly and has arranged an excellent list of committees that will function throughout the Assembly. A most hearty invitation is extended to all members of the profession who are in good standing in their State or Provincial Societies, to be present and enjoy the hospitality of Philadelphia, "The City of Brotherly Love."

Minnesota Society of Internal Medicine

The seventeenth semi-annual meeting of the Minnesota Society of Internal Medicine will be held at Duluth, Minnesota, Saturday, October 20, 1934. The scientific program will be conducted at St. Mary's Hospital beginning at 9 A. M. Dinner will be served at six o'clock at the Kitchi Gammi Club to be followed by the annual business meeting and later by an address on Medical Experiences in India by Dr. Anderson Hilding of Duluth.

The meeting has been called by Dr. E. T. F. Richards, president, and the program has been arranged by Dr. F. J. Hirschboeck.

Northern Minnesota Medical Association

The annual meeting of the Northern Minnesota Medical Association held at Brainerd, Sept. 10-11, was well attended and a fine program rendered.

Dean Scammon's address on "Panel Medicine" in England and Dr. A. E. Jenks' lecture on "Minnesota Man," found two years ago on Highway No. 73, near Pelican Rapids, were the outstanding features of the program.

New officers elected are: Dr. G. I. Badeaux, Brainerd, president; Dr. A. N. Collins, Duluth, vice president; Dr. O. O. Larsen, Detroit Lakes, secretary-treasurer.

The Association will meet in Duluth next year.

O. O. LARSEN, *Secretary-Treasurer.*

Radiological Society of North America

The Radiological Society of North America will hold its next annual meeting at the Hotel Peabody, Memphis, Tennessee, December 3 to 7, 1934. The medical profession is cordially invited to attend. Further information may be obtained by addressing the Secretary-Treasurer, Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, New York.

Washington County

The regular monthly meeting of the Washington County Medical Society was held at the Grand Cafe in Stillwater, Tuesday, September 11, at 6:30 p. m.

The principal event on the program was a discussion of the state meeting at Duluth.

A bound volume of the *Northwestern Medical and Surgical Journal*, dated July, 1870, which was recently discovered, together with three or four other early bound volumes of the journal, was presented to the society by Dr. V. C. Thompson of Marine. It was decided to consult the Historical Committee as to the advisability of presenting the volume to the Historical Society.

A POLIOMYELITIS VACCINE

A vaccine that seems to possess the likelihood of efficacy in the diagnosis and treatment of poliomyelitis is at present undergoing development in the Laboratories of the Department of Health of the City of New York. Influenced by the earlier work and also by the favorable results recently obtained with antigens inactivated by germicides in the prevention of other virus diseases, investigators have attempted to develop a new antigen against poliomyelitis. Using extraordinary precautions, the group in charge of these investigations decided to test out the antigenic properties on themselves before attempting inoculation of children with the antigen. Several members of the research group were injected with a vaccine prepared by adding formaldehyde to a suspension of material from the infected spinal cord. It is proposed, after testing the blood of those who have been inoculated to determine the extent of the immunity developed, to carry the investigations further, inoculating children against this disease. The vaccine will, of course, have been established as absolutely harmless by the injection into the members of the committee and also as to its efficacy by the studies that have been made on monkeys inoculated with virus following inoculation with the vaccine. (Jour. A. M. A., July 28, 1934, p. 264.)

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

Books Received for Review

CONCEPTION PERIOD OF WOMEN. Dr. Hyusaku Ogino, Head of Gynecological Section of Takeyama Hospital, Niigata, Japan. 94 pages. Price, leatherette binding, \$1.00. Harrisburg, Pa.: Medical Arts Publishing Company, 1934.

DISEASES OF THE EYE. Chas. H. May, M.D. 14th edition. 496 pages. Price \$4.00. Baltimore: Wm Wood and Co., 1934.

This popular manual, planned for the student and general practitioner, has gone through fourteen editions since it first appeared in 1900, and has been translated into seven foreign languages. The present edition has been brought up to date, and is the same size as its predecessors.

Its clear, concise style, and the numerous colored illustrations are its chief characteristics. The discussions of the common eye conditions are complete, while rare diseases are passed over briefly. The author has been wise and careful in his omission of unnecessary detail.

The frequent use of this text in the library of the Hennepin County Medical Society attests its value.

CHARLES WILBUR RUCKER, M.D.

I KNOW JUST THE THING FOR THAT. J. F. Montague, M.D., Medical Director, New York Intestinal Sanitarium. 265 pages. Price \$2.00. New York: The John Day Co., 1934.

"For Patients without Doctors and Doctors without Patience," is the subtitle. Self medication always carries with it a certain element of danger, and this book could be criticized from that point of view, although the remedies recommended are not potent ones and could cause little harm. There is much of value to the lay person relative to the anatomy and physiology of the intestinal tube.

There is a semihumorous vein throughout which makes the volume readable and mildly interesting for the physician. The chapter on the "Crime Wave in Cathartics" is of distinct value, condemning the use of phenolphthalein and bran.

The laity will derive much valuable information from this volume, as well as good advice. From this point of view, it is of value. The approach of the volume is entirely to the patient.

J. K. ANDERSON, M.D.

A TEXT-BOOK OF PATHOLOGY. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota. Second Edition, enlarged and thoroughly revised. Illustrated with 364 engravings and 2 colored plates. Price \$8.50. Lea & Febiger, Philadelphia, 1934.

This new edition contains 140 more pages of text and forty-eight more illustrations than did the first, published four years ago. Much of the original text has been amplified and discussed in greater detail, the bib-

liographies are larger and have been made more useful by the addition of short explanatory notes giving the substance of the articles quoted, and more space has been given to the consideration of pathological physiology. A chapter devoted to the diseases of the bones and joints has been added.

The book was written with the object of providing the medical student with a text-book which he could use throughout his medical course and guide him into the clinical branches without any break in the continuity from the basic work. This has been done with such signal success that the book will be found very useful by medical practitioners in their daily practice. It might profitably be read from cover to cover by anyone who is interested in scientific medicine and it would be no difficult task to do this, for the book is written tersely and clearly throughout, and very adequately illustrated.

The bulk of it is from the pen of Dr. Bell himself, but the chapters on the mycoses and on the diseases of the liver and gall bladder by Dr. J. S. McCartney, on diseases of the heart by Dr. B. J. Clawson, on diseases of the spleen by Dr. C. J. Watson and on the diseases of the blood by Dr. Hal Downey all fit well into the picture and give a well-rounded volume of practical, up-to-date reference on a most important subject.

GILBERT COTTAM.

URINE AND URINALYSIS. Louis Gershenfield, Ph.M., B.Sc., P.D. 272 pp. Illus. Price, \$2.75. Philadelphia, Lea & Febiger, 1933.

This is an excellent volume on urinalysis, particularly useful for general practitioners. The style is pleasing and the text is void of unnecessary theory and quotations. It describes the most modern methods of laboratory technic and contains chapters on secretion of the kidney, chemical examination for organic and inorganic substance and abnormal constituents. The subject of renal function tests and hormone tests for pregnancy are adequately covered. The author stresses the great value of microscopic examination of the urine when carefully conducted. There are numerous illustrations.

M. M. SARNECKI, M.D.

HIPPURAN

The Council on Pharmacy and Chemistry reports that Hippuran is a product of the Mallinckrodt Chemical Works, proposed by Swick for intravenous and for oral urography. Its chemical constitution is stated to be sodium ortho-iodo-hippurate. Sodium ortho-iodo-hippurate contains 38.8 per cent of iodine; it is said to be soluble in less than its own weight of water and to be stable in aqueous solution. It was chosen as a promising agent for visualizing the urinary tract, in view of the fact that hippuric acid normally occurs in the urine following the ingestion of benzoic acid, representing a conjugation of benzoic acid with glycine. Usually from 10 to 15 Gm. has been administered by vein in 40 per cent aqueous solution over a period of five minutes. No reactions have been noted except a sensation of generalized warmth, such as has been reported with other products used for intravenous pyelography. With a dose of 30 Gm., occasional vomiting has occurred. By the oral route, diagnostic pictures are reported to have been obtained 90 and 135 minutes after administration, in seven of fourteen cases. As the product has not yet been sufficiently widely employed adequately to determine its value, the Council has voted to defer further consideration of Hippuran until more evidence has accumulated with respect to its clinical usefulness, at which time the product will be examined by the A. M. A. Chemical Laboratory. (*Jour. A. M. A.*, December 16, 1933, p. 1968.)